

Amateur Radio

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JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



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amateur radio



... in this issue ...



On 15th February bushfires raged in VK3 and VK3. In this issue we feature WICEN involvement.

Photo: Greg Noakes — photographer for Southdown Press. Supplied Courtesy of: Dulcie Boling — Chairman and Chief Executive New Idea.

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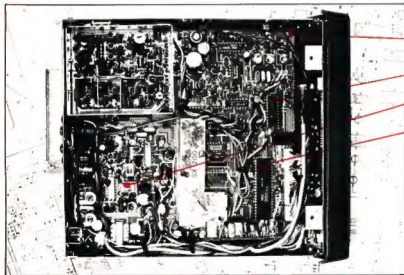
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Bankcard Welcome

Stan Roberts
VK3BSR

At the beginning of February Gil VK3AU1 relieved Bruce VK3UV of the Editorship of AR to allow Bruce more time to devote to his position as Federal President of the WIA. Although Gil has been a member of the Publications Committee for many years this is his first contribution as Editor.



a word from your EDITOR

Taking over as editor of Amateur Radio is quite an experience. The computer which prints the labels chose the changeover as an ideal time to throw a tantrum. Schedules were thrown into disarray as data entries and programme were checked and rechecked.

Thanks to the good work of Reg, the office staff, Ken, Bett, and Automail, the March issue was mailed only a little later than usual. Amateur Radio follows a very tight schedule to reach you at the start of the month.

The whole production team will be working to get it out on time for the rest of the year.

During all this time disastrous bushfires were raging in South Australia and Victoria. Many amateurs have once again provided a much needed service setting up and maintaining emergency communications.

Amateur radio has had some favourable publicity as a result of this. We do not go and offer assistance and provide operators and equipment just for this publicity. The publicity comes from a job well done.

Many WICEN operators had only taken part in exercises such as the "Murray River Canoe Marathon" — see February AR.

When the real thing came the training helped in getting efficient nets into operation.

WICEN operators provided communications to relief organisations such as Red Cross, in addition to the up front organisations fighting the fires.

Think also of the amateurs who have lost everything. Certainly insurance may help to re-establish a station but you can never replace the personal mementos, QSLs, logs and treasured equipment of sentimental value. Let us hope that the lost stations will be re-established, even though the past will be only memories.

On a happier note is the return of the Heard Island operators who have satisfied, for a while, the need for this rare one. Other expeditions will be needed in the future: The need for Heard Island — now satisfied — will be back in a few years.

Articles and photographs are always needed. Amateur Radio needs your contributions. Whenever you go on a field day, go to a convention, raise a new antenna farm send a photo to Amateur Radio.

Gil Sones VK3AU1
Editor
AR



Devastation wreaked by the Bushfires on Ash Wednesday.



QSP



BUSHFIRE EMERGENCY

"ASH WEDNESDAY"

WEDNESDAY 16th February, 1983

The desk calendar informs me that this date is "Ash Wednesday". It would even appear that the people who printed the calendars may have been psychic. On that day, the southern part of Australia literally exploded into ash — from the foothills of Adelaide, through the coastal and forests regions of Victoria to the Victorian/New South Wales border in the east.

The cause — 'Bushfires'. With temperatures in the mid-forties and hot northerly winds exceeding 80 kph in places, the countryside tinder dry from a prolonged drought, the scene was set for a disaster — and it happened! — THE DREADED BUSHFIRES —

Seventy people dead, twelve hundred houses destroyed, thousands of hectares of prime land burnt and several towns wiped out. There is probably not one person reading this who is not already aware of the disaster that occurred.

Emergency services went into full swing and as can be imagined the task was formidable.

There are many stories of untold heroism, and I am proud to have been associated in some small way in assisting some of those who provided assistance to the Police, State Emergency Service, Country Fire Authority, Red Cross, Salvation Army and other community welfare groups.

What of the 'Amateur Radio Service'? You may ask, as only little publicity has been given.

No, we are not looking to pat ourselves on the back, we were just there, using our communications capabilities and expertise for those requiring it.

Victoria's WICEN was activated on the evening of the 16th of February, primarily to provide a back-up communications service to the State Emergency Service and Police.

Approximately two hundred amateurs became involved over a period of five days — during the initial disaster and in assisting mopping up operations.

Three VHF repeaters and 80 and 40 metre nets were used, using the WICEN call sign VK3AWI.

Volunteer operators were stationed at the WICEN Control Centre and at SES head office, Red Cross HQ, police stations and at over thirty locations in the disaster areas. All manned on a twenty four hour basis in eight to ten hour shifts. Some operators worked four and five shifts continuously and volunteers were not in short supply. It appeared that nearly every amateur operator in the state wanted to offer assistance. It was a very heartening and overwhelming response.

It would be unfair of me to single out any one particular person involved in the WICEN bushfire emergency communications, as there were many dozens of operators deeply involved in many aspects of the emergency — from the initial setting up, all providing expert and efficient service for the benefit of our community.

A debriefing session for all people concerned in the amateur operation was due to be held on the 5th March. There will be a further debriefing session of key personnel from various areas at a later date.

It will possibly take many months/years before those affected return to normal living. For some people, probably never, particularly the families who lost loved ones in this disaster.

The amateur service has once again done itself proud, and can hold its head up high. It has proven its willingness and abilities in providing an expert and efficient communications service for the benefit of our community.

We do not look for disasters, we do not want them, but they happen anyway.

One thing is for certain, the amateur radio operator will always be ready if required.

I would like to convey my personal thanks to all amateur operators who rendered assistance in this tragedy.

Alan Noble VK3BBM
PRESIDENT, VICTORIAN DIVISION, WIA





WIA NEWS

DEPARTMENT TO END INVOLVEMENT IN BROADCASTING EXAMINATIONS

The Minister for Communications, Mr Neil Brown, has announced that his Department's role in conducting two broadcasting technical examinations would end at the close of 1983.

"This is a further step in deregulating the industry and means that more responsibility will be placed on the industry itself to ensure a supply of competent technical operators," the Minister said.

The examinations were for certificates known as the Broadcasting Operator's Certificate of Performance (BOCP) and the Television Operator's Certificate of Performance (TVOCF).

Training arrangements in future be left in the hands of the industry and appropriate tertiary institutions.

Mr Brown said that although the qualifications would be phased out at the end of 1983 persons responsible for transmitter performance would be required to have technical qualifications incorporating certain units specified by the Minister.

Candidates who passed BOCP and TVOCF examinations conducted by the Department before 1 January 1984 would be deemed to meet this requirement.

A number of tertiary institutions already conducted courses for technical operators. His Department would be consulting with the Broadcasting Council and various institutions concerning the suitability of their courses.

"The broadcasting industry will need to make training arrangements either in-house or in conjunction with the colleges to meet its needs," Mr Brown said. "My Department is ready to assist in establishing these."

STANDARDS ASSOCIATION OF AUSTRALIA: COMMITTEE ON ELECTROMAGNETIC INTERFERENCE

The WIA now has a representative on the Standards Association of Australia, Committee TE/3: Electromagnetic Interference. He is Mr A Foxcroft, VK3AE, who has had wide experience in this field as a practising engineer.

The prime objective of the committee is to prepare Australian

Standards relating to appropriate levels of electromagnetic interference emanating from all types of electronic and electrical equipment such as electric machines, motors, welders, computers and a wide range of other industrial, scientific and medical equipment. It does not cover unwanted emissions from licensed radiocommunication transmitters such as harmonics, out-of-band intermodulation products, etc.

Of particular interest to amateurs are factors such as levels of radiated and mains-injected signals from TV and BC receivers and TV recording devices (line oscillator, beat frequency oscillator, etc), domestic and industrial motors, ignition interference from motor vehicles, radio diathermy equipment and the like.

This activity can, in some cases, have impact on the WIA EMC programme and therefore the WIA TE/3 committee representative works in conjunction with the Federal EMC Co-ordinator, VK3QQ, as well as the Federal Executive.

The SAA Committee provides guidance to the International Electrotechnical Commission (IEC) Special Committee on Radio Interference, (CISPR), where international standards are formulated on related subjects. Wherever possible these standards are adopted by Australia. The WIA has now, therefore a much enhanced capacity to contribute to work in the RFI/EMC standardisation area at both national and international levels.

1983 FEDERAL CONVENTION

The Institute will be holding its forty-seventh Annual Convention on 23, 24, 25 April 1983.

Motions received to date are:

- Two items from VK1, that the Executive revise and promulgate all WIA band plans and that the Executive approach DOC again to obtain the issue of amateurs licences for longer periods of currency than one year.
- An item from VK2 requires that the concessional pensioner and student subscriptions be reviewed on a Federal basis rather than divisional.
- Items from VK5 require that the WIA involvement with WCY 83 and PR be discussed and that the Federal Executive be requested to change the words CW only to telegraphy only in all future gentlemen's agreement band plans.

AR

DEADLINE

ALL copy for June AR must REACH
PO Box 300, Cullfield South, 3162 no
later than 25th April.



Photo courtesy State Electricity Commission of Victoria

COCKATOO — Vic

WICEN — THE



The devastating bushfires which swept across South Australia and Victoria in mid-February saw the Wireless Institute Civil Emergency Network (WICEN) providing vital communication links.

The fires began on Ash Wednesday 16 February and reached their peak in Victoria that evening as strong northerly winds turned gale force southerly with the passage of a cold front.

On Wednesday night WICEN in Victoria swung into action as the extent of the fires and their destruction was becoming known. The worst damage and loss of life had not occurred at that time.

WIA Victorian president Alan Noble VK3BBM played a leading role in pulling the WICEN operation into shape and stayed with it during the disaster. Before the bushfires Alan had been given the job of examining WICEN's role and its long-term reorganisation in Victoria.

About 160 amateurs took part in the WICEN operation which ran from Wednesday night through until the following

Monday when it was scaled down. Another 150 amateurs had volunteered to help but were held in reserve.

WICEN covered the five major fire areas — the Southwest, the Otways, Macedon Ranges, Warburton, and the Dandenong Ranges. The official WICEN callsign VK3AWI was used from the shack of Kevin VK3YPL in Melbourne's eastern suburb of Donvale. This was the initial command centre for the WICEN operation. Later a caravan was borrowed and stationed on a water tower hill in East Ringwood, and this remained WICEN control until the operation was scaled down.

Alan Noble made a telephone call to the Department of Communications asking for the allocation of callsigns from the suffix WIB-WIZ and these were "given on request". He said the use of these callsigns

greatly assisted in the running of the WICEN net and he thanked DOC for its help.

Apart from being in the fire areas amateurs manned VK3SES on a round-the-clock roster at the Melbourne headquarters of the State Emergency Service. VK3SES backed up the communications of the State Emergency Service and messages for SES were handed on 2 and 80 metres. Communications were also provided at Red Cross headquarters South Melbourne on a twenty four hours a day roster system which saw a large volume of traffic being handled. The Red Cross does not have its own communications and traditionally calls on WICEN.

Among the types of messages handled were the location of evacuees, missing persons, medical advice, and relief supplies.

TEST OF FIRE

Jim Linton VK3PC

4 Ansett Crescent, Forest Hills, Vic 3131

Photo courtesy Mike Thorne VK3BKX



WICEN co-ordinator Peter VK3ANX and Vic Div President Alan VK3BBM.

Photo courtesy State Electricity Commission of Victoria



LORNE — Vic

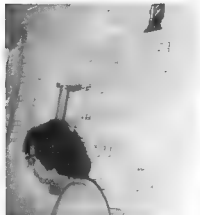
During the height of the bushfires some amateurs stayed at their QTHs in the Gembrook-Emerald area in the Dandenong Ranges at risk to their own safety to provide communications.

urgent medical advice and, expertise in the automotive trade was given when a mechanical breakdown occurred. Peter Mitchell said, "There were many lessons to be learned" from the bushfire disaster. One of them was that more training was needed to "verse amateurs in message and information handling" Peter said out of the operators involved only thirty would be from the hard-core of WICEN operators who regularly take part in exercises.

The exercises he's referring to are the annual Red Cross Murray River Canoe Marathon, the Alpine Rally, and fun runs. He said while the amateur fraternity really pitched in during the disaster he was hopeful it results in more amateurs becoming WICEN regulars.

"I hope those who were involved will continue an association with WICEN by participating in exercises," said Peter. "It was also under serious consideration to have local WICEN exercises with make-believe disasters and prepared messages for handling."

This would test the call out system of amateurs and give them experience in handling messages, and develop WICEN



Gwen VK3DYL operating in the WICEN control caravan with planning board in background.



WICEN control operating from a caravan atop a water tower hill.

WICEN co-ordinator Peter Mitchell VK3ANX said there was some initial reluctance in some quarters to use amateurs for communication, but in the main this soon disappeared when the worth of WICEN was recognised.

Apart from communications there were other skills supplied during the disaster by amateurs — which reflects the wide cross-section of the general community represented within the Amateur Radio Service. Through the WICEN net a doctor gave



Mopping up operations at Mt Macedon with Graham VK3YU (centre) controlling operations.

Photo courtesy — Bill Rose



Debriefing after the fires.

Photo courtesy — Mike Thorne VK3BKK

services have been upgraded must surely now be dispelled. The 1983 Victorian Bushfire Disaster clearly showed that amateurs are prepared and willing to serve their community in time of need.

AMATEURS LOSS IN THE FIRE

Among the approximately 2000 houses destroyed in Victoria some were the homes of amateur radio operators.

One of those was of 78-year-old Harry Duggan VK3XI who lost everything when his house was destroyed by flames in the south western district fires. Harry and his wife Clarice were lucky to escape with their lives. Apart from the Duggan's home and personal belongings, Harry lost extensive radio equipment including three transceivers and his antenna system. Their home was on the Garvoc-Laang Road at Laang.



Harry VK3XI and XYL Clarice.

Harry said on "Ash Wednesday" he saw the smoke to the north-west but did not believe the fire would reach his area. But the fire moved rapidly and by the time he had gone inside to get his wife the fire had hit. Harry and Clarice got into their car and started heading south, driving through the fire. But after they had travelled about a kilometre the fire had cut the road in front of them and built up behind them. Harry said "I made a wild swerve and went back through the fire that I had originally gone through. There was no visibility but I know the road so well I just kept going."

He said he got back to a cleared area, stopped and then found it was actually in front of his own home. A number of people had gathered in the dairy of Harry's neighbour's house, just across the road. The flames at the time were about 100 metres to the west and to the north of his home.

Harry and Clarice watched their home burn as the house exploded from the intense heat before the flames reached the building.

Despite the trauma and heartbreak suffered by Harry he said: "My loss was nothing when you see what has happened to others."

WICEN IN SA

In South Australia WICEN was called out by the Country Fire Service when local telephone exchanges became overloaded. VK5 WICEN co-ordinator Bill Mitchell VK5JUM says communications were provided for CFS and an HF link was established between Mt Gambier and Adelaide on 7 MHz during the day and 3.6 MHz at

into a "proper telegram service". Another lesson learnt, according to the WICEN co-ordinator, is the need to have a pool of amateurs who can handle the administrative side as administration and management practices were needed to sort out rostering, and generally keep track of what is happening. While amateurs are keen to get out in the field and "do something" there's a real need for those to do the important behind the scenes jobs.

A part of the WICEN effort was the St John Ambulance Brigade which used its own call signs VK3SJA and VK3SJB to great advantage through WICEN control. The Brigade's presence added an extra dimension to the WICEN net.

St John Brigade publicity officer Michael Bonacci VK3YZO said the Brigade's two UHF simplex channels were in heavy use and the ability to operate through WICEN control was extremely useful as it enabled the Brigade to "speak to a number of organisations direct" and provided extra safety for members in the field.

Michael wished to also thank those amateurs who manned the Brigade's communication centre during the disaster. A strong relationship has obviously developed between WICEN and the St John Ambulance Brigade, and moves are certain to be made so it can grow even stronger.

Michael was heard in high praise of WICEN while being interviewed about the Brigade's activities on a commercial radio station. In fact WICEN did very well on the publicity side with the Red Cross explaining often to the news media how amateur radio operators had served during the emergency and newspapers, radio and TV news bulletins carried mentions of operators playing their part during the emergency.

The worth of WICEN was proved by its overall performance under great pressure — and at the risk of a pun: "It passed the test of fire." The thoughts of some that the role of WICEN had been diminished because the communications of other

FR 101-222

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MR ALAN WOLFE 12

PRESIDENT WIRELESS INSTITUTE OF AUSTRALIA

412 RIVERSIDE STREET

CONGRATULATIONS TO YOU AND THE MEMBERS OF THE CIVIL EMERGENCY NETWORK ON YOUR FINE PUBLIC SERVICE IN PROVIDING COMMUNICATION LINKS TO VICTIMS AND THEIR FAMILIES DURING THE DEVASTATING WEEK OF BUSHFIRES IN VICTORIA. I AM SURE IT WAS BOTH A GREAT COMFORT TO THOSE AFFECTED AND A GREAT ASSISTANCE IN ORGANISING RELIEF

NEIL ROWN MINISTER FOR COMMUNICATIONS

COL 412

GRAM TELEGRAM TEL

night. Because of skip conditions the 40 metre operation had to be relayed through VK1 stations.

Bill says about four hundred official messages were handled. He says the State Emergency Service asked for communications assistance when the fire operations began quelling down. WICEN was given a place at SES headquarters and a number of operators were sent into the field.

WICEN was commended for its effort by both CFS and SES and now has a permanent place at SES headquarters and amateur antennas are being installed.

Bill wishes to thank those amateurs who were not previously WICEN members but helped out during the emergency. A number of these have since become members of WICEN.

AM

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NEW LIFE FOR THE TH6DXX

Jim Joyce VK3YJ
44 Wren St, Altona. 3018

From listening on air over the last few months, there seems to be some interest in the new HY-GAIN Antenna the TH7DX. However by the tone of most comments little is known about the technical side of the antenna, and very few are aware there is also a kit available to convert your existing TH6DXX into a TH7DX.

After losing my tower and TH6DXX in a storm (see article April 82 AR) I wrote to HY-GAIN in the States for a replacement price. They sent not only the data for the TH6DXX but also the technical data for the new TH7DX, plus the information that one may convert a TH6DXX with a kit (No. 392S) into the new broadband version. Good points about the antenna or kit are the broadbanding without any apparent loss in gain, improved front to back, and in particular the fact that all the fittings are now stainless steel. Anyone who has had to hang by one leg and arm 30 ft up in the air like I have trying to undo rusted up fittings on a beam that had only been up eighteen months will know that zinc or cadmium plating leaves a lot to be desired, particularly in seaside locations! In my opinion the TH7DX is an expensive antenna landed in Australia (then what isn't expensive these days, unless you have a good tax dodge like some). But the kit could offer a viable alternative to the many TH6DXX owners in VK. The following are extracts from HY-GAIN's form No 5314 which reports on both antennas. I leave it to you to decide.

MULTI-BANDING TECHNIQUES:

There are two commonly used techniques for isolating sections of a multi-band antenna. One is the "lumped-constant" L/C circuit which is commonly known as a trap. Basically a trap is a parallel resonant circuit consisting of a capacitor and an inductor. The most common configuration of a trap is a wire coil enclosed within an aluminium tube. The capacitor is formed by the outer tube and the coil inside.

Other types of traps may use linear-loading techniques to replace the coil by a long length of rod or tubing. These traps result in the same amount of inductive loading as a conventional trap, since the shortening effect on the elements is the same. As a general rule-of-thumb for both driven and parasitic elements, the shorter the element is, the more loading and less efficient it is. The second technique is a circuit commonly known as "stub-decoupling". This circuit utilises $\frac{1}{4}$ wave stubs to isolate certain portions of elements and is considered very efficient. In a multi-band parasitic array such as the TH7DX, the use of lumped-constant traps is the most desirable. Preassembled and tested traps substantially reduce on-site assembly time, which is a fact that all of us can appreciate. These traps allow half driven element lengths of 0.225 wavelength on 10 metres, 0.203 wavelength on 15 metres and 0.185 wavelength on 20 metres.

The TH7DX also features a combination of trapped and monoband parasitic

elements. Extensive research by HY-GAIN's engineering team indicated that a higher average front-to-back ratio could be maintained on each band by using this combination. Besides the two driven elements, there are two singly-trapped parasitics on 20 metres, one monoband director and one singly-trapped reflector on 15 metres, and one singly-trapped director as well as a monoband director and monoband reflector on 10 metres. Two of these singly-trapped parasitics are capacitively end-loaded to minimise the shortening effect and resulting in higher efficiency then would be possible with inductive loading.

DUAL-DRIVEN ELEMENTS FOR LOW VSWR ON ALL THREE BANDS

The new TH7DX utilises a combination of two driven-elements, one resonant low in each band and the other resonant high, to produce VSWR less than 2:1 across each of the 10, 15 and 20 metre amateur bands. This dual driven element system uses a standard 50 ohm BN-86 balun and covers the entire 10-metre band from 28.0 to 29.7 MHz. These features are standard only on HY-GAIN's TH7DX. This makes the TH7DX ideal for OSCAR satellite reception when the other HF bands may be useless due to low sun spot numbers. The TH7DX is also ideal for "all-mode" operation, especially with the increasing popularity of RTTY terminals and code-readers in the CW band segments.

GAIN AND RADIATION PATTERN MEASUREMENTS:

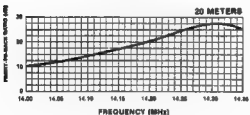
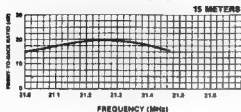
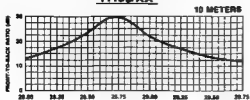
In the amateur radio service it is virtually impossible to measure HF antenna gain and defend your results. This is a highly controversial subject for most manufacturers, publishers and consumers in the amateur radio field. The problem stems from the fact that most amateur radio operators cannot afford the time and equipment necessary to individually verify the advertised gain specifications. Also, no amateur radio publication has the capability to measure and verify antenna gain.

In an effort to avoid controversy and still quantify the gain performance of the new TH7DX, it was decided to simply compare it to the best known high-performance tribander in the world — the TH6DXX. Both antennas were measured against the same reference dipoles using the same test set-up, and under exactly the same conditions. The TH6DXX was selected at random from stock and assembled by an antenna technician. Standard assembly procedures were also used in assembling the new TH7DX. The test antennas were measured at 70 feet (23 metres) above ground and approximately 1500 feet from the transmitter. The gain figures stated for the TH7DX are the measured differences between it and the TH6DXX "Average gain" numbers were obtained by averaging three measurements for each band — top, bottom and band-centre.

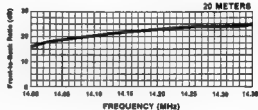
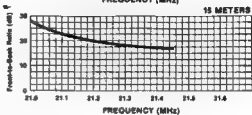
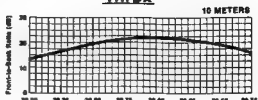
The antenna radiation patterns of the TH7DX and the TH6DXX were also

FRONT-TO-BACK RATIOS:

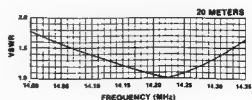
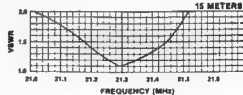
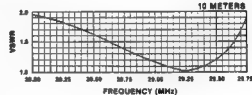
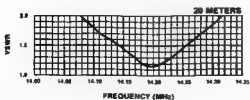
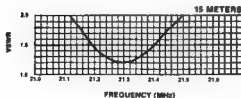
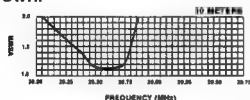
*TH6DXX



TH7DX



VSWR:



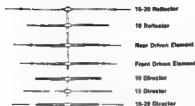
* THE TH6DXX WAS ASSEMBLED TO THE "LOW PHONE" SETTING.

measured on the same test range under identical conditions. The test antennas were used as receiving antennas and were measured using a modern Scientific Atlanta pattern recorder

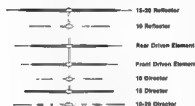
HINTS AND KINKS FOR CONTEST OPERATING...

de Jack VK6JS

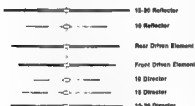
DARKENED ELEMENTS ARE THE ACTIVE ELEMENTS FOR EACH BAND



10 METRES



15 METRES



20 METRES

PERFORMANCE COMPARISON — TH7DX TO TH6DX:

ELECTRICAL:		TH6DX	TH7DX
Power Gain	— Average (dB) 20M Reference	+0.3	
	15M Reference	+1.4	
	10M Reference	+1.7	
	— Peak (dB)	+0.0	
One-Half Power Beamwidth	— Average (degrees) 20M Reference	65.7	
	15M Reference	63.3	
	10M Reference	63.0	
	— Peak (dB)	+0.0	
Front-to-back Ratio	— Average (dB) 20M Reference	+4.0	
	15M Reference	+5.8	
	10M Reference	+0.0	
	— (dB)		
2:1 VSWR Bandwidth	— (kHz) 20M 250	440	
	15M 380	460	
	10M 670	1710	
	— (dB)		
Number of Active Elements —	20M 3	4	
	15M 3	4	
	10M 4	5	
	ND	YES	
Balun Supplied		ND	YES

AR

Listening in on some of the "big gun" contests around the bands might deter some amateurs from becoming involved when they discover the overwhelming rapidity of callsign and report exchanges, a newcomer to the scene would perhaps describe it as "massive QRM". Let's admit it, during a big contest it ain't easy to find a clear spot for that weekly rag-chew with your old mate. Here's a little eavesdrop.

"I think you put it over to me, Joe, and I didn't hear a word you said on that last over some KW guy came right over the top of you calling CQ Test but he's gone now WHAT TEST? .. Break, break."

"Well, Bill, it's one of them World versus The World contests this weekend so I guess we have to make the best of it... Hil

By the way, I heard a JT0 out there just before you came up on frequency and I'd sure like to get him in the log for my DXCC .. do you mind if I take off and hunt him down? Break."

"Not at all, Joe, go for your life... I think I'll track him down myself... I need JT0 too, as you know, and we might come across some more rare ones .. see you later."

That's just one of the interesting aspects of contest operating... catching that rare one! Getting a QSL from him is usually no problem; he's in there either to give YOU a new country, zone, prefix or whatever or he's chasing you for his own reasons. He would obviously have considered and accepted the responsibility of QSL'ing we hope! The name of the game is "grab him when you can!"

Of course, there's a bit more to contesting than just that. My personal approach is that it is foremost a "fun" activity... a good chance to meet old friends (no reason why you can't have a quick chat between contest numbers)... a test of one's operating skills and the ability to put in a respectable score.

Preparation for the contest is all important. There's nothing worse, on switching the rig on, to find an interesting "test" underway. You vaguely recall having read about it somewhere as you glance up at the calendar and decide it's not too late to have a go. Now ensues a hurried attempt to locate the magazine that published the rules, grabbing a writing pad, tuning up the rig, checking the propagation charts, etc... all quite unnecessary if you had been ready for it in advance.

So let's summarize the basic requirements for an enjoyable and satisfying participation in a contest.

If you read of a contest that attracts your attention, write it down on a card showing dates and source to relocate the

rules... pin it up on the shack wall.

On the evening before the commencement of the test, prepare your blank "contest" log sheets... depending on the number of bands you intend to operate on, make up a separate one for each band.

Check your shack clock against WWV and adjust if necessary. Use of a digital type is recommended... It's much quicker to read and jot down. Mine is a "12-hour" displaying local time but this is altered to UTC when the faded copies are written up.

Have a couple of sharpened pencils handy at the operating table... breaking a point at a critical time could lose you a few vital points! And don't forget an eraser to correct those callsigns you hastily scribbled down that might be indecipherable later!

Check your manual key or auto-keyer... get that wrist flexing! I find that an auto-keyer with a multi-speed facility is very handy, in addition to the normal variable "Speed" pot. I have installed a four-position switch on mine for pre-set speeds of 12, 18, 24 and 30... the higher speeds for those UA stations who "send like the clappers!"

Pull out your latest propagation charts and map out your strategy. Pick the best start and finish times for each band, with beam headings, and tabulate them on a card. These don't always turn out to be quite correct but, at least, it gives you a chart to work from.

Now you should be ready to go! Make sure that you're tuned up and ATU'd about twenty minutes or so before the commencement of the test on the band of your first operation... tune around and listen to some of the signals... there's usually quite a few guys "flexing their muscles" with last-minute QSOs before the contest to give you a good idea of band conditions.

We're off... the shack clock shows the precise time of the start and a... he! breaks loose! (This only applies to the "big gun" stuff, of course) DON'T call CQ at this point but tune slowly up the band from the lower end. Grab as many "CQ" stations as you can in the first ten minutes... by this time you've found that there are some vacant frequencies so get in on one and start calling "CQ TEST". But be prepared for a number of stations calling you at once... pick the strongest one or the "tail-end" and work through the pile-up till the frequency is clear again. If there are no returns to your further CQs for the next three or four calls, give it up and go back to chasing those calling CQ as you did earlier. Repeat this process as often as you like.

From VKCW QRP Club Bulletin Nov '82

AR

WORLD WAR II MILITARY SITES SURVEY CAN ANYONE HELP?



Peter Dermoudy
MILITARY SITES CONSULTANT
Northern Territory Museum of Arts & Sciences
Box 4646, Darwin NT 5794

We are conducting a survey of World War II Military Sites and have come up against a puzzle which can't be solved locally. We are hoping that you may be able to help us.

Printed are some photographs of a piece of equipment which obviously was housed inside a relatively small building when it was destroyed by fire. The equipment is now resting on its front face. The building was on raised piers with additional piers and strengthening to the floor beneath the equipment.

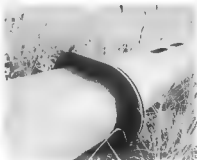
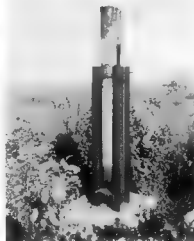
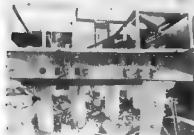
The photographs show a leaf spring suspension system below the cabinet, the top control panel which had a slight inclination from the horizontal and some (three) remaining condensers.

Adjacent to the building is what appears to be the concrete base of a tower.



The location of the installation in World War II parlance would be one (or all) of the following — 10½ mile, 11 mile, Cemetery Plains, Knuckeys Lagoon or Knuckeys Siding. The mileages are the distances from Darwin.

We are hoping to identify the purpose the equipment served and which branch of the Services operated it and perhaps something about the equipment itself and when and for how long it was used.



Incidentally the area in general appears to have had a multitude of radio installations. It is presently opposite the RAAF 11 mile Transmitting Station and adjacent to a recently abandoned DCA radio navigation aids site.

The photographs show aerial bases and the fallen masts which had a double taper with the thickest section being in the middle and flange bolted at that spot. The masts must have been approximately 22-25 metres high and were wire braced from the top and from an intermediate point.

SHORT-WAVE LISTENING ON RTTY

Fred Robertson-Mudie VK1MM and Forward Bias

One of the interesting aspects of short-wave listening that was covered in 'Amateur Radio' (July '82) was that of monitoring HF Marine Communications stations. These Marine stations form a part of what is generally known as the utility services. The utility, or commercial services include fixed and mobile services, aeronautical, maritime, radio-navigation, standard time/frequency, point-to-point, meteorological, press etc, and occupy somewhere in the order of seventy five per cent of the HF spectrum. The utility stations use virtually every type of modulation technique, including radio-telephony, radio-telegraphy and radio-teletype, as well as some of the more exotic formats such as facsimile, four-channel teletype and other multi-channel transmissions (though most of the latter are almost exclusively military).

Whilst few if any amateurs in Australia have the facilities to copy the more exotic formats, an increasing number are becoming involved in RTTY, making it probably the third most common form of amateur communication. This interest can be further enhanced by using the same equipment to monitor the utility RTTY stations on the short-wave bands, and it is an aspect of short-wave listening that can become quite absorbing. There are, for example, more than eighty press agencies using in excess of six hundred frequencies in the HF bands, and literally thousands of other types of utility stations using RTTY.

Not all the commercial/utility stations on the bands can be printed of course, a fact that will have been noticed by those amateurs already involved in this area. The stations which cannot be copied may, for example, be encrypted due to their traffic being of a military or diplomatic nature. Some like the Arabs, whilst still using the standard CCITT2 five unit baudot code, have a quite different alphabet. Others, like the Russians and Greeks etc have, due to their somewhat larger alphabets, a 'third shift' on their machines allowing for the printing of 78 characters. The Japanese get round this problem by using a six unit RTTY code.

Other RTTY stations that cannot be printed on standard machines include, for example, VLS in Sydney which uses the CCIR seven unit SITOP code, the Australian Antarctic stations which use the CCITT3 seven unit ARQ code on their circuits, and the very few stations which use the CCITT5 eight unit ASCII code. The latter code is not very popular due to its high rate of data loss in QRM and QRN on HF circuits.

Most of the commercial traffic on HF uses the standard shifts of 170 Hz, 425 Hz, or 850 Hz, others are using odd shifts of up to 3 kHz. The speed of commercial traffic is not usually a problem as most

use either 50 or 75 baud. It is rare to find a station on HF using speeds in excess of 110 baud, again due to too high a data loss in QRM and QRN.

The monitoring of press agencies is possibly, the more interesting side of this aspect of the hobby. Some of these stations broadcast in French, Spanish etc but the majority are in English (some things in life are meant to be easy). The quality of the material broadcast tends to vary considerably due to the fact that the greater majority of press agencies, ie those in the Communist bloc and in most of the developing countries, are owned and operated by their governments. This results in, for example, the somewhat biased news broadcast by the Telegraph Agency of the Soviet Union (TASS), and the rather crude propaganda broadcast by the (North) Korean Central News Agency (KCNA). However, the better known press agencies like Reuters and Associated Press (AP) broadcast the news that appears in the international pages of the daily newspapers, although it is surprising just how much of this news is either abbreviated or just not printed by the daily press. The advantage of printing the press agencies is that not only do you get 'all' the news, but it is a bit like getting the news before it happens!

Lists of frequencies, call-signs, schedules etc of many of the utility stations can be purchased from various outlets and can, in some cases, be quite comprehensive. However, you may prefer to save your money to purchase other things, including more amateur gear. To help you get started in this interesting aspect of amateur/SWL activity, I have compiled a list of 100 press agencies monitored during 1982. Whilst it is not intended to be comprehensive, and does not contain details of schedules, it could well form the basis of a detailed list of your own. Moreover, covering as it does a range of frequencies from 4 to 27 MHz, it

could also form the basis of an interesting study of HF propagation.

As can be seen, the list only covers the essentials (where known) of station name, call-sign(s), shift and speed. You will note that the most common shift and speed used by the press agencies is 425 Hz and 50 baud. A list of the acronyms of the various agencies included in the table is also given.

At this point, it might be a good idea to mention a few aspects of the practical side of monitoring commercial RTTY stations. It is, for example, essential to use a receiver with a high order of stability otherwise it will be almost impossible to copy these stations. However, most modern receivers are stable enough after a short warm-up period. If your demodulator cannot be switched for the various shifts, it is still possible to copy the different shifts by straddling the gap particularly of a 425 Hz shift. If you cannot copy different speeds, I can only suggest that you get hold of one of the many technical articles on using a UART for speed changing.

The following table shows the normal mark and space frequencies for both the high and low tones used for the more usual shifts.

SHIFT	HIGH TONES			LOW TONES	
	MARK	SPACE		MARK	SPACE
170	2125	2295		1275	1445
425	2125	2550		1275	1700
850	2125	2975		1275	2125

Commercial stations do not necessarily comply with the norm, and may well have the mark and space tones inverted. If your demodulator cannot invert the tones for you, all you have to do is to change to the other side-band. If your demodulator can switch from high to low tones then it is all to the good as commercial stations use both. However, many, if not most demodulators 'don't care' which tones are being used.

In addition to minor frequency variations by the stations themselves, it will be appreciated that there will be slight variations depending on the side-band and set of tones used for monitoring. Regardless of the method used, the stations in the table should all be within ± 1 kHz of the listed frequency.

Of course, once you have your RTTY gear set up and running, you can start to monitor the many RTTY intruders that appear on the exclusive amateur bands. These intruders are mainly from Russia, China, East Germany and North Korea and can sometimes be copied and identified. However, even if you can't identify them, they should still be reported to your Divisional Intruder Watch Co-ordinator.

Finally, if there is sufficient interest, it is intended to publish, at a later date, a similar list of the other types of utility RTTY stations. It is also intended to publish, again if there is sufficient interest, details of international meteorological codes to enable you to use the data transmitted by the various meteorological stations. This utilisation could vary from a general interest in the weather in various parts of the globe to being able to draw up weather maps and plot temperature inversion data — a useful facility when trying to determine propagation in the VHF/UHF bands.

Frequency	Station	Call-Sign	Shift
4 525	BT	LZ1	425
4 804	ANSA	ISZ48	425
5 027	CETEKA	OLC7	425
5 035	ANSA	IRC20	425
5 972	AGERPRESS	YDG59	425
6 884	AP	GIC268	425
7 542	AFP	ZEN33	425
7 577	CETEKA	OLZ2	425
7 592	TANJUG	YD6	425
7 658	TANJUG	YD7	425
7 778	NDNA	ATP65/ATB88	425
7 800	IRNA	EPX9	425
7 806	TANJUG	YD2	425
7 850	ATA	ZAA	425
7 860	IRNA	—	425
7 996	TANJUG	YD9	425
8 020	TANJUG	—	425
8 022	AFP	FT1	425
8 140	TASS	RKA74	425
8 142	CETEKA	OLX4	425
9 052	ANSA	ISY90	425
9 082	ANSA	IRG20	425
9 349	AP	GBU32/GBW34B	425
		GDW42A etc	
9 353	CETEKA	OLX5	425
9 395	KCNA	HMK21	425
9 429	ATA	—	425
9 867	INA	YIZ74	170
10 258	TASS	RDZ71	425
10 270	TASS	—	425
10 319	AFP	—	425
10 407	ANSA	9VF63	850
10 434	ATA	ZAY	425
10 438	TANJUG	YD7	425
10 465	TASS	RKA71/RNN51	425
		RCB55	
10 543	ADN	Y2V54	425
10 558	AFP	FTK	425
10 580	KCNA	HML61/HMK25	425
		HML56/HME28	
10 599	VNA	—	850

10.614	AFP	FTK	425
10.649	AP	GIC308	425
10.730	AFP	ZEM49	425
10.809	ANSA	9VF	850
10.920	ADN	Y2V22	425
10.980	XINHUA	BAP40	850
	BEIJING		
11 230	KCNA	HML61/HMK25	425
11 419	VNA	VNA86	425
11 502	BT	LZ14	425
11 630	TASS	RPT38	425
11 695	SPA	—	425
12 128	ANSA	IRJ31	425
12 265	XINHUA	BZB51/BZB62	425
	BEIJING		
13.410	TASS	RIF38	425
13.487	ANSA	ISX35	425
13.524	INA	YI071	170
13.579	KCNA	HMK25	425
13.625	REUTERS	GPP33	425
13.780	KCNA	HME28	425
13.876	KUNA	9KT32	425
13.890	Prensa	YV2	425
	LATINA		
13.895	ADN	Y2V47	425
13.898	ANSA	IRK28	425
13.974	ANSA	ISX19	425
13.996	RFI	—	425
14.366	XINHUA	BZP54/BZP66	425
	BEIJING		
14.373	INA	YIL71	170
14.460	ADN	Y7A57/71/76/89/62/91	425
		RCT56/RTU44/RKA74 etc.	
14.465	TASS	as above	425
14.470	TASS	—	425
14.484	REUTERS	—	425
14.510	TASS	RIC75	425
14.514	REUTERS	GPN34	425
14.526	—	—	425
14.547	KYODO	JAL44/JUL82	850
14.566	Prensa	CLN445	425
	LATINA		
14.568	ADN	Y7A49/58/68	425
14.570	KCNA	—	425
14.630	ANSA	ISX46	425
14.700	TASS	REB24	425
14.760	XINHUA	BAT93	425
	BEIJING		
14.794	NDNA	ATP65/ATB88	425
14.795	AFP	FTI2/H1	425
14.800	ADN	Y2V24	425
14.803	ANSA	—	850
14.825	ADN	Y2V25	425
14.830	KUNA	9KT33	425
14.845	UPI	—	425
14.922	—	—	850
14.928	Prensa	XVF6	850
	LATINA		
14.974	AP	GBW34B	425
15.022	ADN	—	425
15.462	JANA	—	425
15.633	KCNA	HMH21	425
15.651	—	—	425
15.977	AFP	—	425
15.978	AFP	FPP-97/F	425
16.184	AFP	FZP62	425
20.078	AFP	—	425
20.482	—	—	425
22.812	ADN	—	425
27.027	ANSA	IRZ27	425

Note: All stations use 50 baud except those marked * which use 75 baud.

PRESS AGENCY ACRONYMS

ADN	East Germany News Agency
AFP	Agency France Press
AGERPRESS	Romanian Press Agency
ANSA	Italian Press Agency
AP	Associated Press (London)
ATA	Albanian Telegraph Agency
BT	Bulgarian Telegraph Agency
CETEKA	Czechoslovakian Telegraph Agency
INA	Iraqi News Agency
IRNA	Iranian News Agency
JANA	Jamahira News Agency (Libya)
KCNA	Korean Central News Agency
KUNA	Kuwait News Agency
KYODO	Japanese News Agency
MENA	Middle East News Agency
NDNA	New Delhi News Agency
Prensa LATINA	South/Central American Pool
REUTERS	Reuters News Agency (London)
RFI	Radio France International(?)
SANA	Syrian News Agency
SPA	Saudi Press Agency
SUNA	Sudanese News Agency
TANJUG	Yugoslav News Agency
TASS	Tunis African Press Telegraph Agency of the Soviet Union
UPI	United Press International
VOA	Voice of America
VNA	Vietnam News Agency
WAPA	Palestine News Agency
XINHUA BEIJING	Chinese News Agency

Notes: Some agencies, like TANJUG act as pool agencies for the smaller agencies such as WAPA, JANA, TAP etc.

Prensa LATINA acts as a pool for some of the South and Central American Countries.

Some of the larger agencies have overseas transmitters.

MONEY WORRIES

It's difficult to save money when your neighbors keep buying something you can't afford.

...

Tall men can be just as short at the end of the month as anyone else.

...

Overheard "We can stop worrying about keeping up with the Joneses — they've declared bankruptcy."

...

If you think you have no friends, just rent a cottage on the beach.

...

Inflation A period when a man goes broke in a prosperous way.

...

High school girl to father, "You thank you had it rough when you went to school. Some of the kids in my class had to park their cars four blocks away."

ARNS Bulletin Sept. 1982

SIMPLE EXTERNAL FREQUENCY SELECTION FOR THE ICOM IC-22S

Reg Fookes VK2AKY
Courtesy "DRAGNET" St George ARC

Although the IC-22S is now "out of print" it is still a good, no-frills 2 m transceiver. Its PLL frequency synthesiser provides 144 channels between 144.4 and 147.975 MHz. By soldering diodes into an internal matrix board up to 22 of these channels can be selected by the front panel switch.

This leaves 122 channels which can only be accessed by the rather laborious procedure of changing matrix diodes. A convenient method of selecting these other channels is needed. A published method, G Percy, VK3ZQP, (now VK3PE) Amateur Radio January 1978, p 9 is electronically elegant but complex and covers only 80 channels. The technique to be described is about as simple as possible. It is probably not new and no originality is claimed.

In the IC-22S channel selection is achieved by feeding +9 V through the selected row of matrix diodes to the appropriate inputs of the programmable divider of the PLL. One channel (eg No 22) is set aside for external programming by a series of 8 miniature toggle (or slide) switches and Si diodes. These are mounted in a small metal box mounted above the IC-22S on the plain face of the mounting bracket supplied with the rig, see Fig 1. Label the switches D7 to D0 and/or 128, 64, 32 . . . 1 to correspond with the handbook. In this configuration the bracket functions as a good tilting mount for table top use. As an optional extra a standard phone jack can also be mounted in the switch panel, connected by thin co-ax to a miniature plug for the "Ext Spkr" jack.

Electrical access to the interior of the transceiver is via the 9-pin socket on the rear panel. Disconnect the tuning meter lead, by-pass capacitor and earth connection. With ribbon cable or

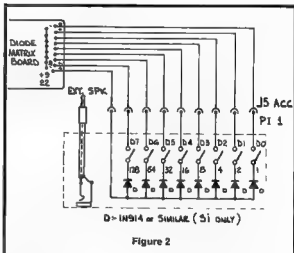


Figure 2

thin hook-up wire connect the socket to the channel No 22 row of holes in the diode matrix board, allowing sufficient length of wire to permit removal of the board for future changes in other channels. The circuit diagram is given in Fig 2. Be careful to keep track of each connection so the sequence of the switches will be covered.

To set up a channel not available with the main selector, turn the switch to Channel 22 and with the procedure given in the handbook, and with due regard for the requirements of simplex or repeater operations, set up the row of diode switches. Closing a switch is equivalent to inserting a diode in the matrix, and vice versa.

It works like a charm.

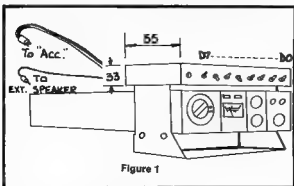


Figure 1

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IC-2K1 Linear Amplifier
144MHz 14.5W 14.5W 14.5W
144MHz 14.5W 14.5W



AT500 Automatic Antenna Tuner
144MHz 14.5W 14.5W 14.5W



IC-70 HF Transceiver
1.6-30MHz 20W 144MHz 14.5W
144MHz 14.5W 14.5W



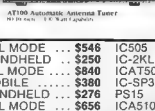
IC-2K1 Linear Amplifier
144MHz 14.5W 14.5W 14.5W
144MHz 14.5W 14.5W



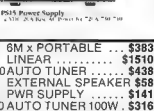
AT500 Automatic Antenna Tuner
144MHz 14.5W 14.5W 14.5W



IC-SP3 External Speaker
for 12.5A 144MHz



AT100 Automatic Antenna Tuner
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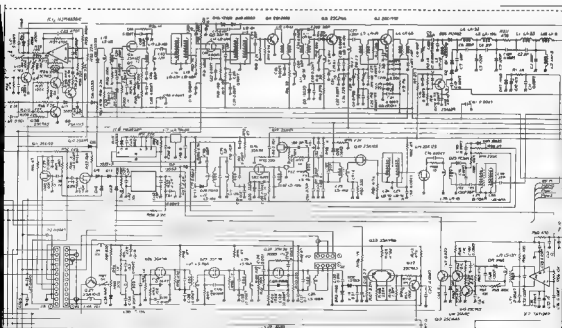


HOW TO MAKE THE ICOM IC-551 NOISE BLANKER WORK ON LOW LEVEL IMPULSE NOISE

©1983

Andrew Martin VK3KAQ.
Woodside, 14 School Road, Ferry Creek,
Vic. 3786

The IC551 noise blanker suffers from having a very high blanking threshold and, consequently, only works on impulse noise that is generated next door. However, much of the impulse noise that is received on 6 metres is of a lower level where the IC551 noise blanker has no effect.



One way to make the IC551 blander work more effectively is to use a receiver preamp with about 20dB of gain but this leads to a poorer receiver cross-mod performance. So, as I did not like the preamp idea, I began to wonder what other means could be used to improve the noise blander performance.

While perusing the IC551 circuit it became apparent to me that when the pass-band-tuning unit is installed, the receiver IF strip of the main PC board is disconnected. My next thought was "why not use this redundant IF strip to obtain the necessary gain to make the noise blander work at lower thresholds?"

This modification basically involves inserting the disused IF strip on the main PC board between the IF sampling point and the noise blander amplifier. To complete this mod you must have installed the pass-band-tuning unit.

Carry out the mod as follows (reference to the IC551 schematic and board layout diagrams will help)

- 1 Remove the top cover.
- 2 Locate the IF strip which is up against the large tin box
- 3 Cut R89. This disconnects the AGC drive to the "S meter" but note that the signal level is provided from the pass-band-tuning unit and we do not want the "S meter" being driven from two different sources. (The components to be cut form



Key to photo — A-R89, B-D12, C-C92, D-L38, E-J2, F-J3.

an inverted "U" so when cutting just snip the bottom of the "U" leaving at least 2 mm of lead on the component and don't pull the component out.)

4 Cut D12. This is the input switching diode for the IF strip.

5 Cut C92 on the end towards the rear of the IC551 and lift C92 up to the vertical position. Be careful to leave enough lead on the PC board and C92 so that the input and output leads can be attached.

6 Install a shielded wire between the now free end of C92 and the now free end of D12. C92 is necessary for IF coupling and DC blocking. This now connects the input

to the IF amplifier. (Use the can of L38 for a ground.)

7 Install a 1/8 watt 100 k resistor between the junction of D12 with the input lead from C92 and ground. This allows D12 to be biased on.

8 Install a shielded wire between J2 pin 2 and the lead end of C92 that was left on the PC board. This connects the output of the IF amplifier back to the noise blander input. The can of L35 can be used for a ground. Note that only one connection to J2 is required for the output.

9 Remove P1 (P1 goes to the pass-band-tuning unit) from J3 which is located about 25 mm towards the rear from the crystal filter.

10 Install a small wire link between pins 6 and 7 of J3 (on the PC board counting from the side nearest the IF strip). This applies the correct +9V supply to the IF strip.

11. Replace P1.

The modification is now complete. Now find some suitable impulse noise (preferably low level) and adjust R65 (threshold adjustment) to obtain optimum blanking. L19 may also require a small amount of adjustment. The AGC on the IF strip is still connected and serves to optimise the blander input level.

This modification has successfully been applied to several IC551's in the Melbourne area and I hope you meet with equal success. Good luck and better DX

AB

WANTED TO BUY

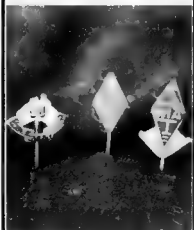
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HOW DANGEROUS IS RF RADIATION?

— Part One

From time to time, we receive requests from amateurs and even people in the commercial field, to give a view on the hazards of RF radiation. Of particular interest to radio amateurs are the VHF and UHF hand held transceivers. Newer models coming onto the market have the capacity to run up to ten watts of RF out.

The WIA is most interested in any reports in respect of RF radiation hazards. Microwave radiation is also a most important discussion area.

To give a fair view of what results have been ascertained in tests overseas, we have collated several articles from QST, and Radio Communication to help educate the Australian radio amateur in the possible hazards in the operation of VHF and above.

The articles are self explanatory, and the WIA or 'Amateur Radio' magazine assumes no responsibility for any of the statements made. The articles will be published as a series for the next three issues, and we would appreciate your thoughts on the matter when all of the articles have been published.

Here are the first of three articles in the series.

VK3UV

RF HEATING IN THE AMATEUR BANDS

By A. Peter Ruderman, PhD, *VE1PZ
Reproduced from QST June 1978

An amateur licence is a licence to transmit RF energy. When you key your transmitter you generate electromagnetic and electrostatic fields around your antenna, when you receive you are tapping the far weaker fields that started at the output of someone else's transmitter. We are immersed all the time in the very weak fields of all the transmitters in operation anywhere in the community: those of other amateurs, commercial stations, CBers, airport control towers, paging systems, microwave ovens and even 60 Hz power transmission lines.

RF radiation is often referred to as non-ionising radiation in order to distinguish it from the ionising radiation that is associated with X-ray equipment and nuclear power plants. There are important differences. Ionising radiation, for example, can have a cumulative effect (This is why atomic plant employees and uranium miners have a lifetime total safe dose to worry about.)

Non-ionising radiation can hurt people when it causes a build-up of heat by agitating the molecules in some part of the body. An increase of 2 degrees C in the temperature of the testicles can cause temporary sterility. An increase of 10 degrees C in the temperature of the eye can cause cataracts to form. This damage is permanent. Greater increases in temperature can be fatal by literally cooking your insides.

Normally, the effect of RF exposure is not cumulative unless tissue damage occurs, since whatever heats up can cool down. The damage caused by RF radiation depends on the amount of power, distance

of the individual from the power source, amount of shielding, and above all the frequency. The frequency determines how much heat will be generated in the body from a given amount of RF power. It takes only some simple commonsense precautions to protect amateurs from RF damage in most cases.

A LOOK AT THE AMATEUR BANDS

From 1.8-30 MHz most of the radiation passes right through you without any after effects. Only a small amount is converted to heat. If you consider that a 1 degree C rise in temperature is tolerable (i.e., like the low fever of a mild cold), you might have to spend an hour or more just three feet away from the feed point of an antenna radiating 500 watts of power at 8 MHz to achieve this effect.

At 144 MHz enough energy is absorbed to cause more rapid heating, and a body close to the energy source at moderate power over a prolonged period can suffer harm.

At 420 MHz about half of the RF energy is converted to heat in the body. This is probably a real danger point.

From 1000-3000 MHz the RF energy is almost completely absorbed in the body. Microwave ovens fall in this range.

At 10 000 MHz we are back to half the energy being absorbed. Still higher frequencies tend to be reflected instead of passing through, as at communication frequencies. The wavelength is such that the energy can just hit the nerve endings in the skin and provide nature's warning signal of feeling the heat.

SAFETY STANDARDS

If you are operating in the 10 metre band with 1 kW of radiated power, and the operating position is 10 metres from the antenna, the power density on the operator would be about 0.8 mW/cm². This looks safe enough, and in fact the radiation pattern from the vertical, dipole or beam, would be such that an amateur 10 metres below the feed point would be receiving less than the theoretical radiation.

Unless there were serious leaks, poor shielding, lots of RF in the shack from radiating feed lines, unbypassed leads etc., there does not seem to be much of a problem.

2 METRES AND UP

At 144 MHz and higher, the picture is quite different. First of all, more of the RF energy is converted to heat in the body. Second, although power is generally lower, a mobile antenna on the car roof is very close to the operator. And a handie-talkie with a built-in microphone brings the operator within a couple of inches of the antenna.

If a mobile operator were transmitting with 10 watts of radiated power, and the antenna was on the left (right in Australia -Ed) front fender, less than one metre from the driver's seat, you could easily get a power density of 10 mW/cm², which might be hazardous in the case of long uninterrupted transmissions. With a handie-talkie a built-in microphone, and only one watt of radiated power, the density would be three or four times as great.

HOW DANGEROUS IS RF RADIATION?

Reproduced from Technical Correspondence QST Sept. 1978

Workers at Motorola have recently conducted experiments of great interest to most amateurs. Their results have been published in several IEEE publications.

The experimenters constructed a simulated human head and torso and exposed it to the radiated fields from 150 and 450 MHz 6 watt, handheld transceivers. Both radios were equipped with helical or "rubber duck" antennas. In addition, tests were performed with the 1/4 wavelength antenna installed on the 450 MHz unit. A thermal probe was used to measure temperature rise due to exposure. These experiments were performed because of concern that the newer, high-power units might pose a health hazard. Previous measurements of the field strength surrounding these radios had indicated that an incident field intensity exceeding 10 mW/cm² might exist. This is a safety standard for human exposure to RF energy at higher frequencies.

Because the field would be concentrated by a probe causing nontypical localized heating, the probe was removed while the transmitter was operating. The "dummy" was exposed from 15 to 60 seconds. After power was removed, the probe was again inserted and the temperature change determined. Steps were taken to prevent thermal transients caused by insertion and removal of the probe. It would have been possible for heating to occur in small areas not being monitored by a probe. To look for

"hot spots", an IR (infrared) scanner was used to take thermograms of the dummy.

Assuming the transceiver was positioned as it would be during normal operation, no significant heating effects were noticed on either band. Even at 450 MHz, the temperature rise was slight. At a shallow probe depth (0.2 inch or 5 mm), the greatest temperature rise was less than 1°C. At deeper probe penetrations the temperature rise was less. Attempting to determine possible hazards from a measurement of radiated field intensity may cause misleading results. The low total energy and high field impedance which exist when such radios are brought in close proximity to the body will result in lower energy transfer than field-strength measurements alone would seem to infer. For example, at a point two inches (50 mm) from the helical antenna of the 150 MHz transmitter (Fig. 1), a Narda field probe measured a maximum field intensity of 168 mW/cm². This value greatly exceeds the 10 mW/cm² exposure standard. Measurements based on the penetrating effects at the same point indicate a maximum power flow density in tissue of 2.8 mW/cm². On 450 MHz, with the same spacing from the 1/4 wavelength whip antenna (Fig. 3), a maximum radiated intensity of 16 mW/cm² was found. Power flow density was only 2.5 mW/cm². The radiation meter indicates a hazardous condition, while actual measurement of the

effects shows this is not the case. Power absorption in all cases was less than 1 mW/cm².

IR thermograms did not detect any unusual hot spots. A health hazard exists when the tip of the antenna is close to the eye (within 0.2 inch or 5 mm) and the transmitter is operated. In this case, and RF burn will result on the cornea. The thick plastic cap on the tip of the antenna makes this unlikely to occur. When the radios are held in the normal position for use, no eye hazard exists.

While these tests were performed at 150 and 450 MHz, I think it is safe to assume we need not fear our portable 220 MHz rigs either. These tests point out the fallacy of using radiated field intensity as a criterion of safety. Some consumer publications have begun to measure the field strength radiated from CB radios. Consumers have been warned not to stand close to the mobile whip while a 5 watt CB transmitter is operating, due to the high field strength! These papers have shown that radiated power may greatly exceed that which is absorbed and converted into heat. Amateurs should continue to exercise prudence when using UHF and microwave equipment, of course. It does seem that our portable transceivers pose no threat to our health.

— J. E. Kearman, W1XZ, RFD,
Collinsville, CT 06022.

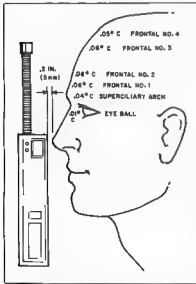


Fig. 1. This drawing shows the position of the 6 watt 150 MHz radio in relation to the head of the dummy. In this configuration, with the transmitter operated for 60 seconds, the temperature increases noted were observed.

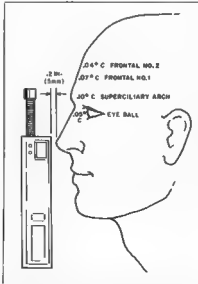


Fig. 2. Position and thermal effects of a 6 watt, 450 MHz radio equipped with a helical or "rubber duck" antenna. A "hot spot" exists near the tip of this antenna. The eyeball is shadowed in its recess and receives very little exposure.

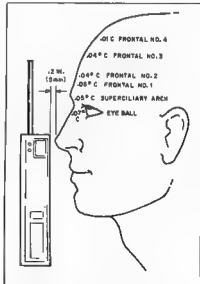


Fig. 3. The same 450 MHz rig, this time with a 1/4 wavelength whip installed. Power density in the eye is greater, but still very low.

ANOTHER VIEW

The article, "RF Heating in the Amateur Bands", which appeared in QST for June, 1978, includes some statements which, in light of extensive experiments performed in our research laboratories, are not correct. Although Dr Ruderman properly warns amateurs to use caution to avoid unnecessary exposures, the power-density levels he quotes are too high to be realistic. At a distance of 10 metres from a half-wavelength 10 metre dipole connected to a one kilowatt output source, the power density in the horizontal direction is about 0.08 mW/cm², not 0.8 mW/cm² as stated by the author. This last value would be found at a distance of 10 metres in the bore sight direction of a 10 dB-gain beam antenna.

Turning to the VHF bands, Dr Ruderman states that a mobile installation transmitting 10 watts effective radiated power (ERP) from an antenna mounted on the left fender, less than one metre from the driver (how much less isn't specified), could expose him to a power density of 10 mW/cm². This value is not corroborated by experimentation. Some research departments at Motorola Inc. have conducted careful measurements of power density inside the cabins of cars equipped with mobile transmitters. The Narda model 8310 radiation monitor, calibrated for VHF operation, was used in the situation described by Dr Ruderman, at a distance of 1.1 m between driver and antenna, the maximum power density measured was 0.05 mW/cm², substantially lower (23 dB) than the 10 mW/cm² level quoted by Ruderman. The 0.05 mW/cm² level is slightly less than the power density one would find in free space (in the direction of

maximum gain) at about one metre from a VHF dipole connected to a 10 watt output source.

In the matter of portable transmitters, Dr Ruderman states that 30-40 mW/cm² power densities exist in the immediate vicinity of a 144 MHz antenna connected to a 1 watt-output transmitter. These values are not supported by experimental evidence either. First of all, it is difficult to define, let alone measure, power density so close to an RF source. At a point near the radiator, different parts of an antenna contribute fields propagating in completely different directions, precluding any obvious definition of power flow. In these conditions, one can measure only energy density (mJ/cm²), by separately evaluating the E and H fields with appropriate instrumentation. In the near field, however, the electromagnetic energy density does not have a simple relationship to power flow. Unlike the far-field case, part of the energy is stationary (static type) and part is propagated. To avoid these difficulties, we measured power deposited in simulated humans, by operating 6 watt-output 150 MHz portable radios equipped with helical antennas. Helicals were selected because they caused much higher energy density readings in field probes than did quarter-wavelength telescopic antennas. The results of these measurements were presented in a recent paper.⁴ The experiments have shown that, at VHF, electromagnetic energy in the immediate proximity of a portable radio antenna does not penetrate into muscle or brain tissue of the human body. There is energy deposition only in the very surface fatty layers. In addition, it was found that if

a user operates a 1 watt portable radio with the case 0.2 inch (5 mm) from his mouth, the maximum absorbed power density (which can be measured from heating effects) is less than 0.2 mW/cm². This value is much lower than the deposition levels (8-10 mW/cm²), due to an incident power level of 30-40 mW/cm² which, Dr Ruderman states, exist near a portable transceiver.

I would like to reassure radio amateurs of the absence of any detected thermal radiation hazard from commercially available mobile and portable radio transmitters, if such equipment is properly installed and operated in accordance with simple common sense.

— Quirino Balzano, PhD, Manager,
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PROGRESS!!

Long, long ago in a land where steam power and stump-jump ploughs were at their height of creation a man sat blowing bubbles.

An observer would have seen a vast array of strangely grotesque measuring equipment lining the walls, a selection of rare metals and heating elements strewn across the bench and bits of molten glass in the carpet as the first ever electron tube was developed.

Within a decade the world had changed 'electronics' and 'amplifiers' became words and were put in dictionaries. Whole populations were astounded by the technological miracles they saw happening around them and gazed in awe at the people who made them happen. After a while the novelty wore off and almost everyone went back to what they were doing before.

As time meandered by the livelihood of more and more people became dependant upon these wireless wonders, 'triodes' and 'tetrodes' became as numerous as garden gnomes. Two world wars and the occasional skirmish boosted technology even further until entire communication net-

works were built in many countries. For engineers, TV repairmen and radio operators alike the mystique and complexity of wireless valve had diminished to the simplicity of a wheelbarrow.

One day catastrophe struck, someone had invented the silicon transistor.

For the second time in a century technology had spiralled along at a staggering rate, those who had a secure position in the past were forced to face a barrage of new terms and techniques to survive. As this pace accelerated even further slow learners who had just begun to grasp the secrets of the three legged wonder were dealt a further blow by the introduction of the digital integrated circuit, which had internals far beyond the comprehension of mere mortals.

Otherwise things were pretty good, the market was flooded with lots of neat gadgets like electronic calculators and space invader machines, even the pen being used to draft this article has a clock in it.

Only sixty years after the birth of an industry a major rift had appeared between old and new, the old scared to take their

eyes off an electronic circuit lest it grow smaller in their absence and the new conjuring up mental pictures of steam engines and stump-jump ploughs where words like 'pentode' creep into conversation.

It is a great pity this gap exists as the workings of modern electronics is simplicity itself, for the first time ever circuit design has been spared all of the complexities of component values and voltages so that greater effort may be directed to doing the job better.

These techniques enable the designer to draw a block diagram of a project and directly proceed to build it optimistic of success, very much like drawing a picture of a chocolate cake, then eating it.

As more people come to realise that a change in materials with which people work does not mean an early retirement but an opportunity to expand a field then the gap that presently exists will be seen to disappear.

by Ian Jackson VK3BUF
Courtesy GATEWAY

MODERN MILITARY SURPLUS EQUIPMENT



Colin MacKinnon, VK2DYM
PO Box 21, Pennant Hills, NSW 2120

In the past couple of years some relatively modern military communications equipment has appeared on the local surplus market.

Over the next few issues I will describe this equipment and its adaptation for amateur use.

This instalment should enable you to recognise the various units and the accessories needed for operation. Future instalments will describe individual units and ways of getting them on air.

GENERAL INFORMATION

The equipment to be described is of English origin and was used by the Australian Army in a variety of transport vehicles and Armoured Fighting Vehicles (AFV). It was replaced several years ago by US designed radio equipment and now turns up in disposals throughout Australia.

The sets can be recognised by the dark green colour of the ribbed aluminium cases and the following nomenclature, generally shown on a tag on the front or top of the case.

NAME	FUNCTION	FREQUENCY
Wireless Set B47	low power FM Transceiver	36-58 MHz
Wireless Set C42	high power FM Transceiver	36-60 MHz
Wireless Set C45	high power FM Transceiver	23-38 MHz
Wireless Sencer C11	high power AM, CW, FSK	2-18 MHz
Reception Set R210	Transmitter AM, CW, FSK	2-18 MHz
Supply Unit	Receiver	
Vibrator No. 12	Power Supply Unit for C42 or C45	
Supply Unit Transformer Rotary 24V	Power Supply Unit for C11	
Aerial Tuning Unit No. 8	Aerial Tuner	for B47
Aerial Tuning Unit No. 6	Aerial Tuner	for C45 & C42
Aerial Tuning Unit No. 7	Aerial Tuner	for C11

As you can see, this equipment can be quite useful on various amateur bands, particularly 6 metres FM.

The equipment was manufactured in 1959-60 and used miniature 6.3V valves with vibrator or dynamotor power supplies. It is obviously top quality and despite being a bit bulky and power hungry it gives a very reasonable performance even by today's standards.

The condition of the available sets varies from brand new in sealed cartons, to some that must have been in the Yarra! Normally the sets are sealed and could be under slight vacuum, so if you find one that has a small black metal cap covering the head of one of the Allen screws which hold the set in its case, and if, when you open the set, you hear an inrush of

air, you probably have a unit that has not been tampered with.

Because the sets (except C11) are virtually watertight the interiors are generally as new, even if the outer case is pretty grubby. The C11 and its PSU have vents that open for air circulation during operation. If the set has previously been opened, check for missing valves and crystals, particularly as all have 1 MHz/100 kHz crystal calibrators. Any mud, corrosion etc. inside is a big problem as the solder joints are probably affected and will break readily. The front panel knobs are a special collet type and should all be there. The dial scale is a photographic negative film with sprocket holes and is prone to damage and deterioration. Rotate the tuning knob while examining the dial scale and listen for noises which could indicate missing sprocket webs or damage.

The sets use a common connection method and even if you propose to deviate from this it is not a bad idea to acquire the basic connecting harnesses.

Vehicle installation required a two core power lead from a 24 volt battery to the Power Supply Unit PSU where used, or direct to the set. A short harness connected the PSU to the set. A control harness type A or B connected each set to a master control box known as the J1 box, or J2 or J9. From there cables ran to each operator's station where headphones/microphones or handsets could be attached via individual small control boxes variously called CU30, CU31, CU34, J48 or B, C, D, or R boxes, depending on facilities provided. Individual audio volume could be adjusted if the box included a low value pot off the audio output bus.

The correct plug and socket connectors and harnesses can be determined by examining the pin layout and shape but check that the threads on the connectors match as there are some harnesses around with non-compatible thread sizes.

The antenna was generally a 2.4 metre rod screwed into a base mounted onto the vehicle. 75 ohm coaxial cable with British Pattern, 4 sockets, not compatible with PL259/SO239, connected to the aerial tuner and to the set. Some vehicles also had a portable 8.7 metre telescopic mast with a variable length whip on top and used rope guys for support. This was fed with about 11 metres of smaller diameter co-ax (RG58/U size).

It is quite feasible to connect up and operate

the sets using the various harnesses and a J box and headset; however in the series I shall consider:

- Alternative power sources
- A description of the circuitry so that troubleshooting, alignment or modification can be studied
- Methods of getting the sets on air without the complexity of the harnesses etc.
- Modifications to improve performance. I will not give step by step details as there is often more than one way of achieving the end result.

POWER SUPPLY ALTERNATIVES

All sets ran on 24V DC at currents ranging from 1.8 amps for the R210 up to a whopping 22 amps for the C11. They are tolerant of wide voltage fluctuations — from 20V to 30V input; although power output drops off at low voltage. All the power supplies have a relay which operates when low voltage is sensed and shorts out a resistance, or changes transformer taps, so increasing voltage into the sets.

There are a number of options for providing the required power:

- Buy an armoured car at a disposals auction. This gives you adequate 24V DC capacity and also commands a certain amount of respect when operating mobile.
- Use a 24V truck battery or connect two 12 volt car batteries in series. This method has the usual problems associated with lead/acid batteries.
- Build a 24V DC supply using commercial or junk box parts. This can be a very simple unit comprising a large transformer, diode rectifiers (perhaps auto alternator diodes?), and a large smoothing capacitor, say 10,000 microfarads at 40V DC. The vibrator or dynamotor are to a large extent self-regulating and will even run off unfiltered DC.
- Adapt one of the many ex-computer power supplies that are on the market. There are a few 240V units that give 24V and 32V outputs at adequate amperage but most seem to be 110V input. However, if the transformer is ferro-resonant, as evidenced by a winding connected to two capacitors rated at about 6 microfarads and 600V each, it can probably still be used. Disconnect the capacitors and feed 240V AC into the winding. Hopefully the 32V DC output circuit will show 24 to 28V DC. Take precautions

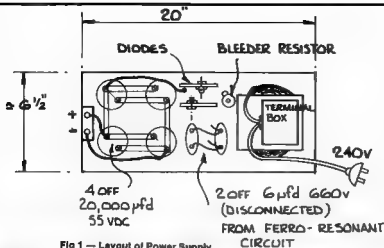


Fig 1 — Layout of Power Supply.



Power Supply — Typical 240 V to 24 VDC. Note — rule in foreground is seven inches long.

with the primary as it will have 80-90V induced in it. You should also check that the 24V wiring is large enough to carry the current. Some supplies provided 5V at heaps of amps but only low current to the 24 or 32V circuits.

See fig 1 and photo 1

5 Dispense with the existing PSU circuit and build up a power supply for the necessary HT, filament and control voltages. This is more work but gets away from the vibrator noise and hash or the dynamotor's lack of efficiency. A large transformer from a valve type TV set, particularly one that has a valve rectifier would make a good start. Details of the voltages necessary will be given in the description of each set.

6 For the R210 there is another neat alternative which I shall detail later.

REMOVING FRONT PANEL KNOBS

The existing knobs are a collet type, called Boot-proof, but the potentiometers and switches have standard shafts. You may wish to fit normal knobs or change the pots or switches. The procedure to remove the knob assembly is:

- (1) Remove the large centre screw and spring washer
- (2) Remove the knob and replace the centre screw 5-6 turns.
- (3) Tap the screw gently and you will find the collet comes loose.
- (4) Remove the large nut, sleeve, collet and washers, then remove the second large nut.
- (5) You will now be able to get at the control.

DESICCANTS

All the sets have a quick-dry moisture absorber in a red tube of aluminium mesh. It cannot be recycled so can be discarded if you choose. As the coils and IFTS are not impregnated you should try to exclude moisture but do not use silica gel inside the set.

AR

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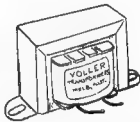
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MODIFICATIONS IN GENERAL

The circuitry of the sets is very conventional and consequently modifications suggested for other valve circuits will work equally well here. Some of my suggestions for one set will also apply to others in the series.

SOVIET RADIOAMATEUR DIPLOMAS¹

The name Vera Stepanovna Sviridova² is well known to Soviet radioamateurs. For almost two decades now she has headed the QSL Bureau and the Diploma Service of the Central Radio Club of the USSR named after E. T. Krenkel. 'Thousands of Soviet and foreign QSL cards and thousands of applications for radioamateur diplomas pass annually through her hands. Today Vera Stepanovna² is a writer for our magazine. In the article published here she acquaints readers with diplomas issued by the CRC of the USSR named after E. T. Krenkel'.

In our country radioamateur diplomas were first established in 1949 by the Central Radio Club of the USSR. These were the diplomas R-100-0³ and R-16-R (since 1957 R-15-R⁴ first R-100-0 diploma for CW operation was received in 1951 by Yu. Prozorovskiy, UA3AW, and for 'phone operation by V. Sheyko, UB5CI, V. Zhelnov, UA4FE, became the owner of R-16-R No. 1 in 1955. In 1957 the CRC of the USSR established three more diplomas, R-150-S, R-10-R, and R-6-K. The first to fulfill the conditions for the R-150-S diploma were V. Goncharovskiy, UB5WF (CW, 1958) and V. Benzar, UC2AA ('phone, 1959). R-10-R diploma No. 1 was given in 1958 to G. Pozdnerik, UO5PK, and the R-6-K in 1958 to N. Stromilov, UA3BN (CW) and V. Glushkov, UO5AA ('phone), and in 1963 to V. Kaplin, UA1CK (SSB).

In honor of the 100th anniversary of the birth of A. S. Popov, the inventor of radio, the diploma W-100-U⁵ was established in 1959. In 1961, in connection with the first manned flight into space by a citizen of the USSR Yu. A. Gagarin, the first ultrashort-wave diploma was established — "Kosmos"/"Space". The RAEM diploma was created in 1972 in memory of the outstanding polar explorer and radioman and the first President of the Federation of Radio Sport of the USSR, E. T. Krenkel⁶. Hero of the Soviet Union Diplomas No. 1 were issued to N. Stromilov, UA3BN (W-100-U), flyer-cosmonaut of the USSR Yu. A. Gagarin, Hero of the Soviet Union ("Kosmos"), and B. Vilpert, UA3BF ("RAEM"). The first radioamateur to fulfill the conditions for "Kosmos" was K. Kalamaev, UR2BU, in 1963.

In the early years, endorsements ("stickers") began to be issued for the R-150-S, R-100-0, and W-100-U diplomas.

We briefly remind readers of the rules concerning diplomas issued by the Federation of Radio Sport of the USSR and the CRC of the USSR named after E. T. Krenkel⁷ to Soviet and foreign radioamateurs.

The diplomas "RAEM", R-6-K, R-10-R, R-15-R, R-100-0, R-150-S, and W-100-U

are issued for radiocommunications carried out on any amateur bands (1.8, 3.6, 7, 14, 21, and 28 MHz) by telegraph or telephone separately (except for the "R-6-K" diploma, which is also issued for QSO's on SSB).

The "RAEM" Diploma is awarded for completing QSO's by telegraph, beginning 24 December 1972, with Soviet amateur radio stations located beyond the polar circles. To receive it, 68 points must be accumulated. For a QSO with radiostations RAEM (only with E. T. Krenkel⁶), 15 points are added, with radiostations in Antarctica and floating in the Arctic — 10, located on islands in the Arctic, on Cape Schmidt, Chelyuskin, Dikson, Pevek, Tiksi, Ust'-Olenok, and at points north of 70° north latitude — 5; located beyond the Arctic Circle — 2. For radioamateurs of South America, Oceania, and Africa points are doubled. With a given populated point only one radiocommunication is counted.

The R-6-K Diploma⁸ is issued for QSO's completed since 7 May 1962⁹ with amateur stations in the six continents of the world (Europe, Asia, Africa, North and Central America, South America, Australia and Oceania). In addition, it is necessary to complete QSO's with stations in the European and Asiatic parts of the USSR.

R-6-K has three levels: First — for QSO's on the 1.8 and 3.5 MHz bands, second — on 7 MHz, third — on any amateur bands.

To receive the R-10-R¹⁰ and R-15-R¹¹ diplomas, it is necessary to complete, within 24 hours (for foreign radioamateurs within any period of time beginning 1 July 1958), QSO's with stations in the 10 radioamateur districts and the 15 union republics of the USSR, respectively.

The R-100-0 Diploma is awarded for completing QSO's, beginning 1 January 1957, with amateur stations in 100 different oblasts of the USSR. It has three levels. The first for QSO's on the 1.8 and 3.5 MHz bands, second — on 7 MHz, third — on any amateur bands. For QSO's with 150 oblasts and with all oblasts existing at the present

time, 150¹² and 150¹³ oblasts' endorsements are issued.

The R-150-S Diploma¹⁴ is issued for QSO's completed beginning 1 June 1956 with amateur stations in 150 different countries or territories of the world (according to the list confirmed by the Federation of Radio Sport of the USSR), including stations in the 15 union republics of the USSR. For QSO's with each 50 new/additional countries (territories of the world endorsements are issued). The last endorsement is "325".

The W-100-U Diploma¹⁵ is awarded for completing QSO's, beginning 1 January 1959, with 100 amateur stations of the USSR, including five stations from the 9th radioamateur district — the birthplace of A. S. Popov. For QSO's with 300, 500 and 1000 radiostations (only those completed not earlier than 1 January 1974), endorsements "300", "500", and "1000" respectively, are issued.

The "Kosmos" Diploma is awarded for QSO's completed, starting 12 April 1961, with stations in the 144 MHz band. It has three levels. The first — for 30 QSO's with different radiostations, including 15 countries (territories) of the world (foreign radioamateurs must have 10 QSO's with different Soviet stations and five different territories), second — for 20 QSO's including 10 different countries (foreign radioamateurs must have 6 QSO's with Soviet stations and three with different countries), third — for 5 QSO's with different countries (foreign applicants must have two QSO's with Soviet stations and two with different countries). Special endorsements are issued for QSO's with each subsequent five countries (territories) of the world.

Article signed by V. Sviridova

NUMBER CODE

¹ Since *diploma* is the word used in Russian, we use it here rather than the more common English equivalent *certificate*.

2. Russian names have three elements — given (first) name, patronymic (middle) name, and family (last) name. The patronymic is derived from one's father's first name, to which is added -ovich/-evich for males and -ovna/-evna for females. Often (as at the beginning of the second introductory paragraph) the first and middle names are used and the last omitted. Many Russian last names end in -ov/-ev or -iy (males), -ovna/-evna or -aya (females).
3. The single word *imani* sounds much more natural in Russian than does "named after" in English; an alternative translation would be "E. T. Krenkel Central Radio Club of the USSR".
4. As noted later in the article, Ernst Teodorovich Krenkel was a famous Soviet arctic explorer; he was also a philatelist and radio amateur. The Central Radio Club was named after him following his death in 1911. In 1971 he held call-sign RAEM and, as an exception to the rules governing construction of amateur call-signs, used it on the amateur bands.
5. Most of the diplomas bear Cyrillic

(Russian) letters, but the "RAEM" and W-100-U use Latin letters. The fact that all of the Cyrillic letters used to designate the diplomas happen to be the same as Latin letters leads to possible confusion. The article does not say, but it is assumed that the abbreviations of the diplomas have the meanings given in subsequent footnotes.

6. In the early post World War II period Karelia was a separate Soviet Socialist Republic, of which there were 16, Karelia was then downgraded to an Autonomous SSR within the RSFSR, making the total 15 and explaining the redesignation of the diploma.
7. Possibly "Rabotal 6 Kontinentov" — "Worked 6 Continents".
8. Popov's birthdate, on which "Radio Day" is celebrated annually in the USSR.
9. Possibly "Rabotal 10 Rayonov" — "Worked 10 Districts". As used here, *rayon* refers to a call-sign district. A more common use by far is to designate a geographical and political unit into which oblasts and other larger units are

subdivided — something akin to our counties.

10. Possibly "Rabotal 15 Respublik" — "Worked 15 Republics". See footnote 6.
11. Possibly "Rabotal 150 Stran" — "Worked 150 Countries".
12. Possibly "Worked 100 U-stations". This is one of the diplomas whose abbreviation is expressed in Latin letters. (The other, "RAEM" is more easily explained since as noted earlier this was Krenkel's call-sign and Soviet call-signs are usually expressed in Latin letters even in texts written otherwise in Cyrillic script.)

The foregoing article appeared on page 17 of the March 1981 issue of RADIO magazine, accompanied by a photo of Mme Sviridova. A briefer description of the diplomas was given in an article "Diplomas Await You" in the newspaper SOVETSKIY PATRIOT for 13 January 1982, in connection with the launching, on 17 December 1981, for six Soviet amateur satellites.

Translated by Dex Anderson K3KWJ/WAKM and published in Region 3 News August 1982.

AM



An Englishman in Australia

When I go abroad on holiday, I try to continue my hobby and get on the air, despite the (occasional) protests of the XYL. Sometimes this can be done by visiting a friend but it is usually more satisfactory to take some gear along. With a certain amount of planning, therefore, I have operated at various times as FO4V, GJ3VLX, PA9TO, G3VLX/DL and 9H3AM.

With the departure of my son for New South Wales over two years ago and a month's holiday in VK planned, the chance to operate there seemed too good to miss. The first task was to organise the licence and eventually I was the proud holder of VK2EBZ.

I had already decided to take with me an Atlas 210X transceiver. This is a very small solid state rig capable of 100W peak output when correctly matched, weighs only 3 kg, and would conveniently go into a suitcase with clothes packed round it. The home brew power pack weighs twice as much and I carried it with the hand luggage. I also packed several dipoles made of 24 gauge copper wire, one length of feeder and a very small SWR meter.

The operating site proved disappointing, half way up a hill facing south, and with numerous trees — too many for good propagation. With the help of my son, we slung a 7 MHz dipole between two trees at about 5 metres height and I set up my shack in the garage. The first QSO on 21 MHz with a JA encouraged me greatly — until I realised that the number of JAs on the band, and the favourable sea path make



Deryck, G3VLX/VK2EBZ and Len VK2API.

such contacts relatively easy. In the following three weeks I worked several JAs and a number of VKs but was unable to get into Europe as I had hoped. Although I had brought a key with me I could hear little CW and I realised too late that the Atlas has no sidetone facility which made sending difficult.

In UK most electricity distribution (apart from the 132/400 kV grid) is underground

but I was somewhat disappointed to find that most power lines in Australia are at roof height. This was undoubtedly responsible for most of the mush which masked the weaker signals.

Even so I had some interesting QSOs on phone and if we had more time would have been keen to accept some of the hospitality offered. Operating abroad is always an experience — one of the tasks I could not do without a struggle was to keep the log in UTC (Do I take off eleven hours? If it's 0800 here what is it in London? Is the date different? I almost gave up).

I think you are lucky to have the band up to 7.3 MHz. In Region 1 we are limited to 7.1 MHz and the phone section from 7.040 MHz to 7.100 MHz is nearly always crammed with QSOs — when it's not occupied by (illegal) broadcasters. If we want to work W on phone it has to be split frequency.

Despite the handicaps it was fascinating to work from VK and I am grateful to several VK stations who gave me encouragement. Next time I am able to activate VK2EBZ the locals may be even kinder and lend me a trap vertical, or a three element beam!

AM

A SENSITIVE SWR METER

Drew Diamond, VK3XU,

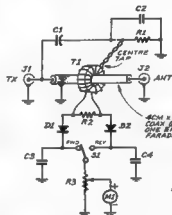
43 Boyana Cres., CROYDON, 3136.

A low SWR is very important, particularly to the QRP operator, as high efficiency is one of our goals. Some transceivers have circuitry to reduce the output when a poorly matched load is used. SWR indicators normally available are quite insensitive at low frequencies, particularly 1.8MHz, and generally require in the order of 10 watts for a full-scale reading in the forward direction. The meter to be described requires only one watt on all HF bands for full-scale forward indication. The final circuit was derived after investigating several similar arrangements from various publications. Locally available components are used.



Theory

The signal travelling from in (TX) to out (ANT) establishes an electric field between the inner and outer conductors, and a magnetic field around the conductors. The coax line forms the primary of transformer T1, and so the alternating magnetic field induces a voltage in the centre-tapped secondary winding, which is loaded by R2. C1 samples the electric field, and is so adjusted that when the load on the out side is 50 ohms resistive, the voltage injected into the tap of T1 aids the voltage in one half, and exactly cancels the voltage in the other half. Now, any load which departs from 50 ohms resistive will cause less cancellation of the voltage in the other half, and so an indication may be given as to the degree of mismatch. The remainder of the circuit is self explanatory.



- C1: 5-25pF TRIM CAP
C2: 270pF $\pm 5\%$
C3: .047 μ >63V DISC. CERAMIC
C4: }
R1: 1K Ω - $\frac{1}{2}$ W - 5%
R2: 56 Ω - $\frac{1}{2}$ W - 5%
R3: 10K Ω VAR.

D1, D2: 1A418 OR EQUIV. (SEE TEXT)

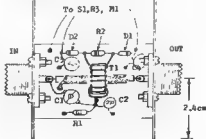
T1: 15 TURNS 20B β S SHAM. ON MEGSID 4327/2/F25 CORE

M1: 0-50 μ A

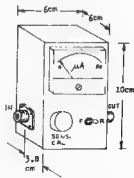
S1: SPDT TOGGLE

J1, J2: UNF FEMALE COAX CONN.

5.5 x 3.5cm PCB or sheet metal held in place with 4 lugs under connector securing nuts.



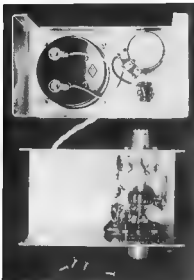
Meter, pot, and S1 are mounted in lid of case.



6 x 6 x 10 case avail. with cover from many outlets.

Construction

The diagram and photograph show a suggested method of construction. The coax (jacket removed) fits snugly through T1 as shown. Care must be taken to ensure that the enamel on the secondary is not scratched by the coax braid. The components are self supporting, and may be accommodated upon a suitable piece of sheet metal or PCB. AAZ18 diodes were found to yield the best sensitivity. Alternatively, OA91 or OA95 diodes may be used at slightly less sensitivity.



Adjustment

C1 is adjusted so that little or no reverse reading is obtained when the out connector is terminated with a purely resistive load. A satisfactory load may consist of two 100 ohm 1W Philips cracked carbon resistors in parallel, and soldered to a suitable connector. Apply about one watt of carrier on the highest HF frequency to be used, and adjust C1 for a null as indicated on M1 with S1 in the REV position. If the meter is to be calibrated, calculate the degree of mismatch for various terminations, e.g. 33 ohms or 75 ohms represents an SWR of 1.5, 25 or 100 is 2.0, 18 or 150 is 3.0 and so on. The sensitivity calibrate pot. must be adjusted so that a forward reading of full-scale (60 microamps) is obtained before checking the reverse reading. The sensitivity is quite constant from 1.8 to 30MHz, so the instrument may also be employed as an in-line wattmeter after appropriate calibration.

First Published in the VK CW QRP Club Bulletin.
Photos: Peter Dalton

AR



TRY THIS

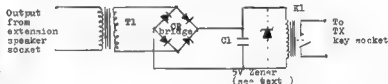
Stephen Gard VK2PMF
104 Hughes Street Denilquin 2710

A CASSETTE PLAYER/TRANSCIVER INTERFACE DEVICE

This simple circuit allows an ordinary cassette player which has an external speaker socket, to key a transmitter in its ICW mode. The idea comes from Don Smith, VK2BDU.

The small AC voltage from the player's speaker socket is stepped up, then rectified, and used to close a normally open reed-relay, across which is the transmitter's keying circuit, taken from the key socket at the rear of the transceiver.

The circuit is shown here:



- T1: speaker transformer, primary approx. 7 kilohms secondary to match impedance of cassette player
CR 1-4: EM 401 or similar
C1: 1 MF polyester (at least 50VW)
K1: reed relay, normally open.

(Zener diode BZX581 or similar)

The transformer was salvaged from an old mantle radio, and should have an impedance to match the cassette player's output. The reed relay should be rated for the current in the transmitter's keying circuit.

The unit works well on 3.5, 7 and 14 MHz, but at higher frequencies, rectification in the audio circuits of the cassette player proved troublesome: the output was unusable.

An audio oscillator is used to prepare the message on the tape, but a high record level is advisable ("in the red"), and the audio output should be at a high level also (8/10).

The circuit can also be used with the Zener diode shown to provide input (from the transceiver's audio output) to a RTTY demodulation programme in a computer system.

AR

The Radiocommunications Act

Communications and Electronics have progressed dramatically since the Wireless Telegraphy Act was written.

After many attempts to re-write the old Act, there is now every indication that the Bill for the new Act will be 'tabled' in Parliament.

The National EMC Advisory Service would like to remind all Amateurs of the importance of this — "Bill for the New Act" — and the direct effect this new Act could have on the Amateur Radio Service.

The "Bill" is the "Act" in draft form; therefore it can be

amended many times, before it becomes an Act... Copies of the Bill should become available at the Government Printer's Office.

If, after studying the contents of the Bill, you feel that you have a contribution, or may be in a position to assist the committee with any facet of this important response, please write to your Division, or direct to:

Chairman, Caspar,

(Communications Act Special Planning and Response),
Committee, PO Box 300, Caulfield South, 3160

VK7AMC — THE AUSTRALIAN MARITIME COLLEGE

Australian
Maritime College



Broder Tuff VK7XX
C/- Australian Maritime College
Launceston



The Australian Maritime College was established as a Commonwealth tertiary education institution in 1978 to cater for the education and training of personnel for the Australian shipping industry and the general maritime industry both ashore and afloat.

The main campus is situated at Launceston, Tasmania, with a Seamanship Centre at Beauty Point near the mouth of the River Tamar about 50 km north of Launceston.

The College's two training vessels are berthed at Beauty Point — 'Bluefin', a thirty-five metre purpose-built, fisheries training vessel which is the largest stern trawler in Australian waters and the 1300 ton, sixty-four metre navigation and seamanship training vessel 'Wyuna', the former Port Phillip pilot vessel. 'Wyuna' (VKVS) has been completely refurbished and refitted by the College.

The School of Engineering, situated on the main campus at Launceston, is involved in many aspects of maritime related engineering education, including training radio officers for the shipping industry and technical officers for the wider field of maritime electronics.

At an early stage in the College's development it was felt that amateur radio had a role to play in the education of professional communicators and it was decided to install an amateur radio station, whose call sign became VK7AMC. Owing to the pressure of establishing a new College and new courses the amateur station was used only intermittently until recently and VK7AMC was a comparatively rare call to hear on the air.

During October 1982 lecturing staff and technical officers finally found time to organise a field trip for radio students. The location was a chalet 1200 m up Ben Lomond mountain. The party of about twenty people comprised several experienced radio officers attending a Radar Maintenance Course at the College, several members of the 1983 Antarctic Expedition attending a Communication Officers Course, students from the Associate Diploma Course in Marine Radiocommunication, College lecturers and the writer's family.

Among those present were Vince Kitney VK6VK, Peter Stickland VK6AST, both of

whom will be operating VK0 callsigns in 1983, Colin Whale VK4CU, Glo Donk VK7GO, Geoff Harrison VK7LA, Mike Collinson AMC Lecturer VK7MA, Broder Tuff VK7XX, Christine VK7CC and Stewart VK7II, Broder's wife and son.



The QTH on Ben Lomond.

The party arrived on site at 5.00 PM and promptly split into separate groups, one to wire up the chalet with power supplies, lights etc, from the 4.5 kilowatt generator we had brought along (the 600 watt standby was never used); another to erect aerials and a third to organise equipment.



VK6AST/OST studying RTTY screen whilst Simon Hood (student) operates 20 metres.

The aerial group erected a 7 m high TH5, rotated by two vice grips on the mast, a 220 m long wire from the top of a convenient mound of rocks about 40 m high (via the fork of two trees) to the chalet roof, an 8 element 2 m beam and a 14 element 70 cm beam, along with various dipoles, etc.

By 9.00 PM there were 3HF, a VHF and UHF stations established and on the air. The party operated continuously over forty-four hours and contacted over two hundred stations in thirty-two countries. Many of the QSO's were quite long and very interesting. During a brief interlude that weekend three separate parties climbed to the 1572 m summit of Ben Lomond and operated a two metre portable with some success.



Steve Burns, Andrew Tuff, Glo Donk, VK7GO and Broder Tuff, VK7XX working 2 metres.

The next opportunity to air the College call sign arose in December 1982. 'Wyuna' was scheduled to make a voyage to Lord Howe Island, Middleton Reef, Newcastle, Sydney and back to Launceston from 5 to 17 December.

Four radio students, an electronics technical officer and the writer participated on the voyage with twenty-seven Nautical Science cadets and members of the School



VK7AMC/MM aboard the training vessel 'Wyuna'. Pictured are L to R — Robin VK7RA (student), Magella Robinson (student), Broder Tuff VK7XX (lecturer), Tony Robertson (technical officer) Nick Lindsay (student).



Lord Howe Island as seen from the deck of the 'Wyuna'.



Students prepare to go ashore at Lord Howe Island.

acted as a relay one evening

The spirit of amateur radio showed its very best in these and many more incidents including the patience and understanding of many operators with the inexperience of some of the students on the microphone and key. Thanks to all. You'll be happy to know that you really won a few converts to the ranks.

We were very pleased to have the opportunity to make all the contacts. The only frustrating part of the exercise was to lie at anchor half a mile off Lord Howe Island and not get ashore to use the VK2/LH call. Maybe another year the radio students will get put ashore for a few days with some equipment as a DX expedition.

Now that the installation of equipment and establishment of courses at the College has passed the initial hectic period, it is expected that VK7AMC, the Australian Maritime College, will be heard much more often on the radio amateur bands. We look forward to holding regular skeds and nets



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of Nautical Science lecturing staff. It was decided that VK7AMC should go stroke MM. A trap dipole was hastily erected between the masts of the ship, the TS830S with ATU installed in the radio office, and VK7AMC/MM was on the air.

Schedules were kept with the College station in Launceston and the writer's XYL four times a day throughout the trip and the station was operated when training schedules permitted. About three hundred stations were worked in sixteen countries and many of the QSO's lasted from half an

hour to an hour. During some of the schedules the spirit of amateur radio was very much to the forefront particularly when conditions were bad after the ship had passed through a very severe electrical storm. Noteworthy incidents included a VK2 station calling to ask if we knew there were coral outcrops at the entrance to Lord Howe Island lagoon which were unmarked on present charts, a VK6 phoning a friend of the writer to bring him on air; a VK7 phoning VK7CC, one night to get her to keep a schedule and the LA station who

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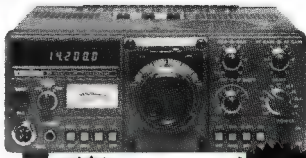
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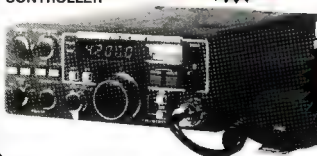
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	\$	\$	\$	\$	\$	\$	\$
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(a) Metropolitan	30	27	28	27	32	29	28.5
(b) Country	30	27	28	27	30	29	28.5
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(a) Metropolitan	30	29	32	27	34	30	28.5
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Frequencies: (1.8125), 1.825, (3.595), 3.595, (7.146), 28.320, 52.120,

52.525, 144.120 MHz

6850 Wollongong, 7000 Sydney, (7100 Westlakes), 8525 Sydney

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Broadcasts — 1.840, 3.600, 7.135, 53.032 (AM), 144.2 (USB) MHz and 2

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General Meetings — Second Wednesday of each month at 20:00

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Broadcasts — 1.825, 3.580, 7.120, 14.342, 21.175, 28.400 MHz

Repeaters: Channel 6700 and 7000 at 09:00 hours.

Re-broadcasts — 3.605 MHz on Mondays at 19:30 hours and 20 m

RTTY at 20:00 hours.

General Meetings — Third Friday of each month at 19:30 hours.

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Secretary — Mr David M Clegg, VK5AMK

Broadcasts — 1.850, 3.550, 7.095, 14.175, 21.195, 28.470, 53.1 MHz.

Repeater: Channel 7000 at 09:00 hours.

General Meetings — Fourth Tuesday of each month at 19:30 hours.

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Secretary — Mr Fred Parsonage, VK6PF

Broadcasts — 3.560, 7.050, 14.100, 14.175, 28.470, 53.1 MHz 2 metres.

Channel 2 Perth, Channel 2 Wagin at 09:30 hours.

General Meetings — Third Tuesday of each month

TASMANIA:

President — Mr Lloyd Cherry, VK7BF

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Broadcasts — 7.130 MHz SSB with relays on 6 and 2 metres Channel

2 (north), Channel 6 (south), Channel 3 (north-west), at 09:30 hours.

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Secretary — Mr Robert Milken, VK8NRM

Broadcasts — Relay of VK5WJ on 3.555 MHz and on 146.5 MHz at

09:30 hours. Slow morse transmission by VK8HA on 3.555 MHz at

10:00 hours almost every day

POSTAL INFORMATION:

VK1 PO Box 46, Canberra, 2600. Phone (06) 21 3889

VK2 — PO Box 1066, Parramatta, 2150. 109 Wigram Street,

Parramatta. Phone (02) 889 2417. Dural during B'casts only.

Phone 631 1489

VK3 — 412 Brunswick Street, Fitzroy, 3065. Phone (03) 417 3535 from

10:00 to 15:00 hours weekdays

VK4 — GPO Box 638 Brisbane, 4001. Phone (07) 349 7768.

VK5 — GPO Box 1234, Adelaide 5001. West Thebarton Road,

Thebarton. Phone (08) 352 3428.

VK6 — GPO Box 10, West Perth, 6005.

VK7 — PO Box 1010, Launceston, 7250.

VK8 (included with VK5), Darwin Amateur Radio Club, PO Box

37317, Winnellie, Northern Territory, 5789

SLOW MORSE TRANSMISSIONS:

Most week day evenings from about 09:30 UTC onwards around

3.550 MHz

VK QSL BUREAU:

The following official list of VK QSL Bureaux are all inwards and

outwards unless otherwise stated

VK1 QSL Officer, GPO Box 46, Canberra, ACT 2600

VK2 — QSL Bureau, PO Box 73, Teralba, NSW 2284

VK3 — Inwards QSL Bureau, Mrs Barbara Gray, VK3BYK, 1 Amery

Street, Ashburton, Vic 3147.

VK3 — Outwards QSL Bureau, Mr Des Clark, VK3DES, C/o VK3

Rooms.

VK4 — QSL Officer, GPO Box 638, Brisbane, Qld 4001

VK5 — QSL Bureau, Mr Ray Dobson, VK5DI, 16 Howden Road,

Fulham, SA 5024.

VK6 — QSL Bureau, Mr Jim Rumble, VK6RL, GPO Box F319, Perth

WA 6001

VK7 — QSL Bureau, GPO Box 3710, Hobart, Tas 7001

VK8 — QSL Bureau, C/- VK8HA, PO Box 1418, Darwin, NT 5794.

VK9 & 0 — Federal QSL Bureau, Mr Neil Penfold, VK6NE, 388

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VK5 — Mr David M Clegg, VK5AMK

VK6 — Mr Bruce Hedland Thomas, VK6OO

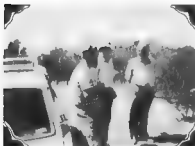
VK7 — Mr Ivan Ling, VK7XL



WORLD COMMUNICATIONS YEAR

JOHN MOYLE FIELD DAY

On Sunday, 13th February 1983, members of ARs Publications Committee ventured into the You Yangs, a mountain range close to Melbourne, to participate in the John Moyle Field Day Contest. Graphically, with photographs taken by Bill Rice VK3ABP, technical editor and John Hill VK3DKK, advertising manager from the Federal office we will attempt to describe their day of operation under the callsign VK3WIA/P.



"Now what will we do first!" L to R — Bill Rice VK3ABP, Ron Cook VK3AFW, and Gil Sones VK3AUI.



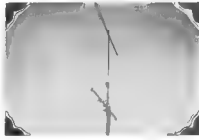
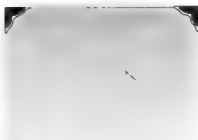
A neat trick for carrying the antenna on the car! Gil VK3AUI unloads his antenna array.



Fortunately, there was little wind or Bruce VK3UV would have been 'aeronautical mobile' as he helped Ron disassemble his antenna.



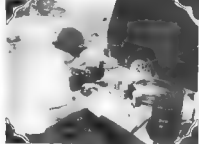
"How will we get this thing up in the air" contemplates Ron VK3AFW.



Portable antennas which enabled an enjoyable day for all.



Antenna array erected attached to pack rack of car.



Bruce Batho's VK3UV operating during the Field Day exercise.



HOW'S DX

Ken J McLachlan VK3AH
PO Box 39, Mooroolbark 3138

This month, to provide the opening remarks to this column, Ken G3NBC has submitted the following observations by invitation. Ken G3NBC, has been an amateur and member of the RSGB for nearly a quarter of a century, and past Certificate Manager for the RSGB in the 1960s. Ken has a DXCC score in excess of 326 countries confirmed and has entitled his remarks 'THE OTHER END OF THE QSO'.

'For almost a quarter of a century of amateur radio operating I have always had a considerable interest in finding out a bit about the other end of a DX contact, either by radio or occasionally when one has the opportunity of a personal contact with an overseas amateur.

Through our hobby, we are able to gain much knowledge of the world in which we find ourselves. Its geography, its history, its people, etc. . . A great deal may also be learned about aspects of amateur radio as seen from the distant operators point of view.

Unless one is fortunate enough to be able to travel and operate from various parts of the world it is unusual for us to regard operating conditions in any other way than it is known from our particular location. This of course is far from the case and what is one operators DX may be another's QRM. Therefore a little knowledge of how things are, radio wise, may help when wishing to work into that part of the globe.

'With this in mind an attempt will be made to provide a picture of how the DX bands are seen (or heard) from here in the UK. As my own activity and interest is mainly confined to the 10, 15, and 20 metre bands. These will be considered in this illustration with just a brief look at 40 metres.

TEN METRES

Very little activity during our summer months is usual, apart from the occasional European short skip, although sometimes South America and Southern Africa may come through. With the exception of the 10 between years, the period from September to April can produce some exotic and interesting results.

There is however, a usual pattern of day-to-day propagation with the opening of the band shortly after 0800 UTC until it closes with the coming of darkness in the early evening. The morning, until about 1200/1300 UTC sees easterly propagation from north to south permitting communication (depending on how good the conditions are) with JA, ZL, UA0, KH2, VK, VS8, P29, H44 etc. Africa and the Middle East may

also be worked. At the same time very strong single skip signals from Europe UA, UB5 and YU stations are normal. Such signals are numerous, and often S9 plus, creating considerable problems when one is trying to work a DX station.

After 1300 UTC propagation rapidly changes to the west with activity from North America and Canada followed closely by South America until the closing of the band. Contacts into the Pacific area are fairly rare, but an interesting condition sometimes occurs, when the long path opens to VK and ZL around 2200 UTC from an otherwise dead band. This is, however, a short lived condition. Propagation on the 10 metre band is invariably on the short path.

FIFTEEN METRES

This is a very interesting band with generally all year DX propagation although often closing in mid evening (1900-2000 UTC) during the winter months. The paths that are open from the UK can be very varied throughout the day and sometimes all parts from all Continents may be heard simultaneously. There is, however, a pattern of propagation which usually provides contact with ZL, VK, UA0 and the Pacific area until 1300 UTC. Asia and Africa 1500 to 1700 UTC. North and South America hold from early evening until the band closes. QRM due to strong short skip signals is far less of a problem on this band, making DX working easier.

The best time for VK/G station QSO's would seem to be between 0700-1200 UTC and maybe sometimes on either path. During the summer months very good openings occur to the south and south west with ZL possible at that time.

TWENTY METRES

The 20 metre band carries most of the DX traffic throughout the year and except for a period during the winter months is often open 24 hours per day. A propagation pattern is very noticeable making the winter-time doldrums, early morning (up to around 0930/1000 UTC) working in a westerly direction from north to south which includes the long path to VK and the direct paths to the South and Central Pacific area. During the larger part of the day DX working is very difficult as the longer distance paths are usually poor and short skip conditions predominate until 1700/1800 UTC. The evening often opens the short path to VK and sometimes ZL, FK8 and the Pacific Ocean, and of course North and South America.

The 20 metre band in this part of the world is very heavily congested, QRM can be unbelievable and behaviour of some

operators leaves a lot to be desired. One often has to attempt to hear a DX station with an S9+ 20/40dB signal a few kilohertz away, or be tuned up on in the middle of a contact if one is lucky enough to make themselves heard. Many European stations are permitted to run a much higher power limit than is permitted in the UK and antenna planning constraints are not so rigorously applied. These factors leave the "G" stations with a disadvantage in the competition for DX contacts. So an appeal to all DX stations, if you have a pile up, please listen carefully as there may be "G" stations calling from a few layers down.

FORTY METRE OPERATION

The activity from this QTH, on this band, is limited by the use of only a dipole antenna at present which is, of course, very useful for working around the UK and Europe but from time to time has brought some DX results, UA0, YB0, PY, EA8, EA9, VP2, VP8, etc having been entered in the log.

Many DX signals may be heard in the early morning hours until about 0900 UTC and again in the evening after 2000 UTC although they have to be found among the high-powered broadcast stations which plague the band until the early morning hours. Throughout the daytime, big signals from within a few hundred kilometres occupy the band.

UK operators are always very glad to have contacts with VK and it is obvious that many good and long lasting friendships have resulted from our hobby. It is hoped that the above notes will give the VK amateur an insight as to the state of the bands in this country and will be of interest to any amateur wishing to make contacts with this country.

Please remember that operating with the QRM often experienced in this part of the world is not always easy, so PLEASE, have patience with the "G" who may be struggling with all kinds of noise to hear his DX contact."

Have you heard Heard? This was the cry of the multitude from all continents when one swung across twenty metres at any hour of the day or night when the band was open. Fifteen metres didn't give many a chance and ten does not even rate a mention as the monitoring at this QTH drew a complete blank on signals from anywhere.

Perhaps it is one of "MURPHY'S LAWS" that intervened when the most wanted country on the DXCC lists was activated by two DXpeditions. Anything from massive solar flares and total radio "blackouts" to

sheer deliberate QRM marred many more contacts made by both groups.

The antenna at this QTH spent most of its time looking at VK0 Heard, except, when serious local wind storms by our standards were forecast and there were a few. Many hours were spent monitoring the excellent operating of both Dave VK0HI and Al VK0CW whilst engaging myself in other chores. It was interesting to note, the number of stations who had previously "boasted" that they had Heard Island confirmed and then lined up for a contact prior to the stations who needed it for a "new" one, not only once, but a number of times. Some people really take "safety in numbers" too far!

Full marks must be given to the operators on the island for their patience, reliability and dedication to assist those that do not possess the luxury of "split operation" facilities, also for their assistance to the Australian Novice in allowing them to participate and gain a new country. Many novice operators have indicated their appreciation of the courtesy shown.

Apparently the new inhabitants of Heard Island had their problems with the weather which destroyed some of the property and sand blasted everything in sight. Most stations, after they have worked an expedition, have only the thought of when they are going to receive the card. Very little thought is given to the safety and safe return of the people that have taken innumerable risks and spent their saved up holiday time or taken leave of absence from their daily chores to give the DXer a new country. Think, have patience and please don't publicly criticise, particularly on air, leaving many to add their own connotations to the story and start unnecessary rumours.

With this Australian possession now down the list of much wanted countries, will the number of BY stations active on CW, as promised, use the sideband mode in the near future and will such rarities as S9, YA and ZA grace the current log books this year? Let us all hope so.

Tom, VE7BC is planning to return to BY land next month on business and it is hoped that the relocation of BY1PKs antennae to a higher location has been completed. This, it is envisaged, will eliminate some of the TVI problems encountered on the last visit when Tom had the problem of modulating all TV sets in the near vicinity.

It has been stated from reliable sources that other stations may soon appear from BV. This area has been ably taken care of by Tim BV2A and BV2B who was first licensed in 1939 and his hobby is interspersed with his occupation as a Director of Columbia Chinese Pictures in Taipei. Let us, as DXers, hope that the scope of the hobby will be promoted beyond our wildest expectations in WCY 1983.

CROZET

A much wanted country until Georges took it off the high priority list of most keen DXers last year. This year two amateurs are very active. Look for FB8ZP and FB8ZQ in the French "area" of the band (below 14 120 MHz) If you are successful the QSL route is via F6KNO.

SUDAN

Roger, who has been operating 9Y4RD/SU, anticipates being in ST towards the end of March for a few weeks. If you catch Roger, who hopes to operate when time is available, QSL to Roger's home call.

HARD WORKED

The ARRL in their DX awards system have, since 1947, issued a mammoth number of 39,291 certificates. In 1981, alone 3,527 new certificates were issued and 7,159 endorsements went through the doors. In the 1981 period five amateurs were disqualified for submitting "altered, phony or counterfeit cards". One amateur who was almost on the Honour Roll, was disqualified for altering cards to suit the mode or class he was applying for.

The total cards handled at Newington, as one can imagine, is astronomical and can be understood when there was in excess of ten thousand applications in 1981.

It is interesting to note, that the ARRL DXCC rules allow any one who is disqualified, to commence all over again after a five year period by submitting all new cards.

Would the alteration of cards to obtain that valued certificate be worth all that trouble and the embarrassment of disqualification plus the monetary loss of starting again? I personally don't think so.

INACTIVITY

The amateur who has recently attained his licence will probably be interested in the following inactivity list which was compiled by Denny K8DB in a submission to the Northern Ohio Amateur Radio Society, of which he is a member. The submission concerned Honour Roll status but the activity list is of interest.

XZ	1965	70	1970
VU7	1971	*CE0X	1972
YA	1974	XU	1975
YV	1975	4W	1975
*C9	1976	*HK0	1977
5A	1977	*ZL/K	1977
VU7	1978	F00	1978
A6	1979	*IS	1979
D2A	1979	VY0	1980
*TT8	1980	*SY	1980

The above list is in order of prefixes and last authentic operation and spans some twelve years. The current DXCC list now stands at 315 countries and it is going to be a miracle for some of the newcomers over the last five years to attain the 300 figure yet attain the Honour Roll figure of 305 current countries which is determined as being ten countries less than the maximum attainable. Asterisks denote probable operation in the future.

Of course there are others where there is little hope held for a fully fledged operation to be launched from their boundaries and these include some of the remote areas which will cost a small fortune to activate considering the world wide escalation of fuel and charter expenses.

Two groups of amateurs could gain access to a number of the much wanted areas. Namely the "Globetrotting" Colvins with their persuasiveness and track record and Erik, SM0AGD with his connections.

Both would, it is sure, have the blessing of the ARRL DXCC committee in their submissions for the validity of an operation.

SP BACK ON THE AIR

Legitimate SP stations may soon be on the airways again in the near future. Mail is coming out of this country with no problems and all persons who held a call sign prior to the enforcement of martial law are to submit applications through a complicated system.

This system commences with the local radio club and ends up with the Inspectorate of the Military for Communications for final approval. It is understood that former calls will still be retained and will not be reallocated to other individuals.

PHONY CARDS

Received a lot of cards from the Bureau and one or two in the mail from SWLers generally with an airmail envelope and one IRC if you are lucky? Then beware. As with all cards they need particularly careful checking against the log as the "unscrupulous" are around.

Collection of awards for amateurs and short wave listeners is big business and if you don't meticulously check your log you could be aiding the issue of a certificate that has not been gained in the spirit of the hobby.

One method that seems to work, though it is time consuming, is on the receipt of cards from the Bureau (after looking for any new or rare countries) is to sort them into year/month/date/time order and then make an onslaught on the logs. A hint, our children are now expert at sorting cards.

SAN MARINO PREFIXES

From April 83 the radio amateurs of San Marino will change their prefixes M1 and 9A1 will not exist, but the new prefixes are T7A to T7Z (First class licence) T72A to T7Z2 (Second class licence VHF and above only) T70A (Radio Club Station "Corrado Francini" Silent Key M1A) T71A to T71Z (Special prefix only First class)

The stations QRV at present time will change their calls in this way:
M1B will be T77B, QSL Via WA3HUP.
M1BS will be T77S, QSL via Call Book address.
M1C will be T77C, QSL Via Call Book address.
M1D will be T77D, QSL Via Call Book address.
M1H will be T77H, QSL Via Call Book address.
M1I will be T77I, QSL Via Call Book address.
M1J will be T77J, QSL Via Box 1, Dogana 47031 Rep San Marino.
M1V will be T77V, QSL Via Box 1, San Marino City or Call Book address.
M1Y will be T77Y, QSL Via 10MWI.
M1W will be T77W, QSL Via Call Book address.
T70A QSL Via Box 1 San Marino City 47031 Rep San Marino Europe.

The 27th April will start the first operation with T70A station beginning from 1300 to 1300 UTC of the day after two way SSB,

CW, RTTY. A special card with first day stamps of World Communication Year will be obtainable with one contact on any band and mode. For any other information write to ARRS Box 1, Rep San Marino 47031

QTHs YOU MAY NEED

A71AD PO Box 4747, Doha, Qatar
A92NH Nabeel PO Box 752, Bahrain
C53CR PO Box 2282, Serekunda, Banjul
EA9JV PO Box 100, Melilla, North of Africa, Spain
J88AR PO Box 106, St Vincent
J88BC PO Box 853, St Vincent
JT0LAJ PO Box 180, Ulan Bator, Mongolia.
HV2VO G. Gotnick, 106PY, V Vigne Morena, 90, 00040 Roma
JT60AB PO Box 844, Ulan Bator
KX6PO PO Box 915, Majura, Republic Marshall Islands 96960.
M1V PO Box 1, San Marino
PY0SJ
PY0SP

to N6CW 4639 Katherine Pl. La Mesa, CA 92041 USA
SU1AA PO Box 109, Giza, Egypt
SU1ER PO Box 33, Int Airport, Cairo, Egypt.
T2GSH Gordon, C/- PO Tuvulu, Central Pacific
Z07BW G. Smilie, St Helena Island, St Atlantic Ocean
5V7HL PO Box 8072, Lome
6W8CC PO Box 1258, Dakar, Senegal
7P8CR PO Box 212, Maseru, Lesotho
9Y4RD/
SU

Roger de Weever, UNTSO, PO Box 20, Grand Central Station NY, NY 10163.

QSL MANAGERS

C30QH — DL8OH, CE9ZAD — WB6WDD, CN8AT — OE3NH, C02HS — WB6PG, C02PY — KB7SB, CT20L — G4KJF, DF1MM/C6A — DJ2BW, EA4LH/CE3 — EA4JF, E09CM — EA9JV, DK7PE/HB0 — DK7PE, EN6A — UK6AAJ, HH2CB — K9WJU, HH2CQ — K4JPD, PY0CW — PY7CW, PY0ZZ — PY7ZZ, V2AU — OE3ALW, V2AZL — W2HMS, VK0CW — VK6NE, VK0HI — VK6NE, ZK1XX — K80ZL, 5H3MI — SMSKOK, 5H3YL — SM6BDW, 5T5TO — F8BUM, 5WTDW — VK3VU, 5Z4CS — J1VLV, 7X4BL — DF9EP, 7Z2AP — I8YCP, 8P6J — N6TJ, 9X5SL — DL8DF, 9Y50JW — K2QIE

CW WORKED ON THE WEST COAST

5Z4CP* 5Z4CS, A4XJO*, A4XJO* 0L1RK, F8VJ, F8BZQ* F8BZQ, G0ABEG, G3ZSP, J28DP, OHYXX, OK1DXS/A, SM5DCA, UA3PM, UK2RDX, UK5080, UQ2GKM, Y1BVL, VK0JS*, VK0JS*, VS6DD, XT2AW* VE5AES, ZC4BI*

* Denotes 3.5 MHz

* Denotes 7 MHz

All others 1.6 MHz

SSB WORKED ON THE EAST COAST

3A2EE, 3A2LF, 3B8DA/3B9, 4S7EA, 4Z4JS, 5H38H, 5N0ATW, 5Z4DA, 8074Z, 951HT, 9H1U, 9K2KA, 9N38, C21BK, C21FE, G0AEC, C0ZAO, C03BH, C55SG, CP1FO, CP8ADE, C04JA, DL80B, DU7RLC, E14A, E16BA, F6KHL, F68WH, F68W1* F8B8X, F8BZQ, F8BZR, FR7ZS, G3N8C, G4RTI, G6WZS, H44AK, HB9CV, HC1HC, IZJHF, I8SAT, J2BAZ, JY5RBM, K66JH, KX6PO, KX6QM, OZ7B, P0PBN, SM4GFL, T2GSH, T30CH, TA1MO, T1ZEWL, T1KBC, LA08DA, JA9UKA, UK2B8X, UP2BG, UK6CW, VK0HI, V09CI, VS5DD, VS6EL, WK4I, YK1AQ, Y03QK, YV5AK, Z21GJ, Z5ZHP

* Denotes 7 MHz

All others 14 MHz

CW SWING WITH ERIC L30042

28 MHz
DJ6RX, G3KHZ, JH0WGN, UK50AC

21 MHz
CX10Z, FK8CE, HL5MC, OH4ML, PY7YS, UK7PAL, UL7XE, UK9HAC, VE7IN, ZE2XX, YC1CPG, 5B4LY

14 MHz
C01CBU, CT20N, G6ZY/EA6, FB8ZQ, FK8EJ, FK0AN, FM7WA, F08IU, G4DM, HK0BKX, HL1CX, K4VCI, T30AC, T12PI, VK0HI, VK0NL, VU2KMK, XE3LPY, YB30N, YV1AD, DL0G0/ZLS, 3D2ER, 5B4LY, 5M20K

10 MHz
C31IU, DK6PB, EA3EF, F2PC, G6HL, G3CVH, JE1SPY, KH6AT, KV4CI, PA38TH, T08RU

7 MHz
DL3ZI, E190, F8VN, G3BDO, F08BI, H89APJ, HZ1AB, I0HCJ, LZ1RU, K6RRT, OE300G, OK1KOJ, ON5NT, T32AF, T12BEV, UA8KAI, U06GN, UH8EAA, U05OWN, UR2REE, VP5FUF, VU2TTC, Y2700, YU1RL, ZK2BGD, 4N9YU, 4X4WF

3.5 MHz
DJ9GW, HA9RT, HA8RU, JA1KYE, OH2VO, YU1FU

QSLs received (Feb)
C2INL, AM01B0 (Spain), G3FJO (10 MHz), FWOAG, PA38TH (10 MHz), T2AGD, T30CB, VP2MIX, IC2NY (10 MHz) 6Y5AG

THANKS

To the magazines CQDX, DX NEWS SHEET, DX NEWS, RADCOM, QST, SHORT WAVE MAGAZINE, WORLD RADIO and the QSL MANAGERS GUIDE, grateful thanks for interesting reading. Amateurs including DK9KD, G3N8C, I8SAT and VKs 1MM, 3UX, 2EBX, 2PS, 3YJ, 3YL, 4KA, 6NE and L30042. Sincere thanks for making the column possible. Good DXing and a happy Easter to all.



Mike VK9ZYX of Cocos-Veering Island.

Photo — Neil Penfold VK6NE

MAGAZINE REVIEW

Roy Hartkopf VK3AOH
34 Toolangi Road, Alphington, Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

RADIO COMMUNICATION February 1983

Slow to fast SSTV converter (P) Elliptic Filters (T) VHF Propagation over Snowdon (G)

QST December 1982

Annual Index (G) The Ultimate QSO. (G) Effect of towers on your antenna. (T) 73 January 1983

Narrow band ATV. (T) Reclaiming silver from fixer solution. (P) The BBC (G) Computer designed filters. (P) 73 February 1983

2 metre to HF transverter. (P) Direct Broadcast Satellites (G) Mobile Noise. (P) Russian Satellites (G)

WHO IS THIS AMATEUR?



Because of ill health he has not been seen at a radio meeting since those held at Celtic Chambers, George St. Brisbane and he has had little to say at any Brisbane

However he is very well known for his writing on subjects generally related to amateur radio as he contributes to several journals including AR (see Dec p 28)

In 1937 he commenced as a broadcast technician with the ABC. For most of his early amateur radio career he was a dedicated morse operator but of latter years he may sometimes be heard on SSB

His operating activity may be measured by the number of certificates that he has earned. In fact few operators in VK would have more. Apart from writing he is well known for his comparatively extensive collection of early radio artifacts, including a fine collection of morse keys

His call sign is sweetness itself
Yes he is Al VK4 Sugar Sugar

AR

ANACONDA RETURNS

NEIL PENFOLD VK6NE
VK6 DX Group

After one of the most successful voyages of her career, Anaconda returned to Australia on Wednesday, 9th March. Aboard were a jubilant group of men and women returning from an adventure of a lifetime; VK0HI and VK0CW with over 30,000 DX contacts to their credit, and the second successful ascent of Mawson's Peak to the mountaineering party. Photographs and film footage yet to be viewed, should have remarkable and beautiful scenes to behold.



The voyage home was without incident, except for the exhilaration caused by some speedysailing. Anaconda clocked eighteen knots for some parts of the trip, when helped along by the waves and wind. It must have known that it was homeward bound.



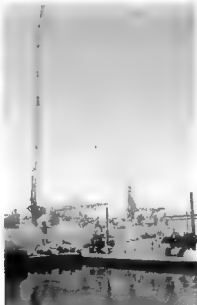
In Adelaide, many excited friends and relatives greeted the expeditioners. The young women aboard were easily recognised, but most of the men were hidden behind great clumps of facial fungus. This is an Antarctic Region disease that most



males catch when working in these very cold latitudes.



Amateur radio played its part exceedingly well for the duration of the expedition. From leaving Adelaide till the return, contact was maintained almost daily, only missing out during the solar disturbances. From the feedback received, people at both ends of the link are grateful. This includes the link to America, for our friend AI was able to keep in contact, and his call VK0CW was regularly received by his liaison people. Having only married just prior to leaving for the expedition from America his wife was re-assured almost daily of his location and health.



The sked frequency of 14.110 MHz became well known right from the start of the expedition. And almost without exception, the skeds were maintained without interference. This was greatly appreciated by all concerned with the safety and well being of the group.

We know many were waiting, as when the skeds were finished, VK0HI would then be "fair game" and the numbers who then called, gave an indication as to how many waited in silence before VK0HI called "QRZ".

For QSL's —
NORTH AMERICA — N2OT
— JAPAN — The DX Family
Foundation PO Box 12, Shinjuku-
Kita, Ochiai, Tokyo 161 Japan
REST OF WORLD — VK6NE



HEARD ISLAND EXPEDITION '83

Neil Penfold VK6NE

VK6 DX Group

By now the world of DX should be happy with the efforts of Dave VK0HI and Al VK0CW. Despite solar disturbances, which reduced their operating time, approx thirty thousand contacts were made, world-wide.

Propagation was generally as predicted with some parts of the world receiving only very short openings to the island and then only on one band. The teflon bearings and guys stood up to the high winds and constant rotating of the mast and antenna, as the search for a path to any part of the world was a constant practice.

After the first frantic days of the clamouring for contacts died down, it was heartening to hear the "little pistols", being picked up. With the efforts of the stations on the island to work VK and NZ, there should not be anyone who has tried that didn't make a contact.

Of interest, was the behaviour of some operators, who did what now seems to be the normal for DXpedition operations. Long calls, tailgating, shout abuse at each other etc, etc, trying to attract the operators of the DX station. During one particularly unpleasant period, Al the operator at the time, was heard to say "OK you lids, on goes the tape recorder and all your call signs and smart remarks, will be heard when I play the tape at the conventions and hamfests I will attend on my return home." For a while after that you could hear the proverbial pin drop.

Towards the 6th of February a noticeable change began in propagation leading up to a total blackout over the weekend and almost up to the 7th, when signals began to come through again. As the openings began, the operators gathered up any contact that appeared but it was slow going.

The continual request, to "please QSY to 80 or 40 or 15 or 10, tried their patience, especially as they were often then working their way through a pile-up.

There has been some question of Al using the call sign of VK0HI for long periods. This has been authorised in writing by the DOC. After the departure of Chuck Brady back to the USA, Dave and Al decided to use 0CW on CW and 0HI on SSB. However there was a little rivalry between them, as to who would work the most countries, so from time to time, suddenly 0CW would appear to catch a new one. The result has yet to be determined.

The deluge of QSL mail has yet to arrive, but with the early arrivals are many with comments. These range from "thanks", to, "at last after chasing VK0HI for 19 days, taking two days off work, finally got it".

As one of the team who put the expedition together, and now opening the incoming mail it is with satisfaction to read the notes on the QSL cards. The QSLing is being handled by three organisations so the project should not be too onerous. But please, do include a SELF ADDRESSED ENVELOPE with your card. The process of replying will be done on return of the logs, around 15th March, and the entries counted. N2DT will handle North America, The JA DX family Foundation for Japan, and VK6NE, the rest of the world.

Communications with the advance camp at Spit Bay were tenuous at the best of times, even though they were only thirty kilometres away. The NZ radios used successfully on NZ mountains seemed to object to being away from home. Fortunately the operations at the advance camp and the climb up Big Ben went as planned and no problems were encountered that were not surmountable.

At base camp in Atlas Cove, on the 5th Feb, our men welcomed the arrival of the Chaynes II, which was carrying a group of people with similar aims to our expedition. They set up operations, two hundred metres away but mutual interference took place, till the 15th of March when the ex whale-chaser departed for Hobart via Albany. Their arrival had been delayed by weather off southern Tasmania, and at the second attempt, a stop at Albany was made for refuelling. This was due to excessive fuel consumption, which was cured before it left Albany in West Australia. Then a stop at Kerguelen was made for water, finally arriving just as a solar flare caused a weekend blackout of propagation.

Conditions for living and operating were as expected. The old French huts were in reasonable condition. The steel and timber construction has withstood the onslaught of time and weather. The furniture was adequate, but housekeeping was a chore. The grit was continually being blown into the hut through any crevice it could find, and also it filtered down from the roof timbers. It covered everything, people, equipment, sleeping bags and proved a constant problem.

Some days of no propagation and the weather allowed, exploratory walks were taken with care. Searching for tags on the tails of leopard seals produced some hair raising moments. Not all seals like having their tails lifted to see what's under them. A

note for further use is to take motorcycle full face helmets for walking about where the skua birds abound. They are a formidable hazard, diving and swooping at you as you walk along.

There was a report of rumblings from the vicinity of the mountain but as to their origin that has yet to be determined.

The return of the expedition to Australia is expected to be around 15th March, and at the time of writing, whether it returns to Adelaide or Perth is unknown.

And so now comes to an end, an amateur expedition which many organisations and amateurs may regard with some pride, as once again amateur radio shows that it could be done.

DONATIONS WHICH HAVE NOT BEEN PUBLISHED IN AMATEUR RADIO TO THE DECEMBER ISSUE.

CALLSIGN	\$	CURRENCY
VK2XT	10	AUST
VK40X	5	AUST
VK81W	15	AUST second donation)
VK6AJW	20	AUST
DJ8NKA	50	DM
G3NOF	9	AUST
DUTCH AMATEURS	105	AUST (via PA0A.G.)
PA0HYF	5	JS
VE7BIP	10	AUST
JDE LORENZO	25	?
MUUNCE AREA ARC	50	US (via KB9-VJ)
KA20RV	10	JS
WA3HJP	100	JS
K4GDE	5	JS
WB40SN	20	JS
KAAEQW	5	JS
N4TL	5	US
W4WJ	10	US
K4CEF	10	JS
K4KUZ	20	JS
W50ZF	10	US
NSAN	200	JS
W7OK	5	JS
W7YF	10	JS
K8PXG	15	JS
W9KA	5	US
VE30ZV	10	US
JH5FCN	33	US
DXFF (Japanese)	20	US
VK2XT	10	ALST
WESTERN PA DX ASS US	25	US
W2FTV	5	US
JH6GWW	10	US
VK6PY	25	AJST

ASSOCIATE MEMBERS FROM COMPLETE LIST SUPPLIED BY MRS BLUNT DATED 2nd JANUARY 1985

LETTER P DENOTES ALREADY PUBLISHED IN
AMATEUR RADIO, ALL OTHERS YET TO BE
PUBLISHED

VK2		VK3	
QC	P	DKH	P
AYF	P	YIP	P
01	P	KAR	P
KKK	P	0B0	P
BIX	P	8H	P
DBH	P	ZIT	P
KNR	P	8PF	P
ZK	P	DRH	P
NKN	P	PDX	P
KNG		AGG	P
DPN		AVY	P
ECC		AET	P
DOW		AXO	P
ECN		AGH	P
WN		GFN	P
NFZ		YKK	P
CJD		L30253	P
AYG		ADN	P
AV.		BTk	P
D. STONE		DU	P

NLM		WO	
VIK		AFZ	
VO		L0	
VNG		NKY	
OT		ZLH	
AUI		CCT	
LUX		L50122	
DXE		L50037	
L30546		L50038	
AG0		AAM	
PH		VKG	
VK4		FS	P
KSF	P	YL	P
CB	P	ZGA	P
YK	P	DV	P
BTX	P	CU	P
WLA	P	DQ	P
WJJ		JP	P
AGW		ILU	P
OZ		KG	P
QA		AWJ	P
NEL		FY	P
ASI		MM	P
ABX		NEG	P
ABA		YD	P
VK5		KBW	P
L50545	P	WTW	P
AHP	P	OF	P
		IW	P

ACP		WORLD	
NEB		A4XYF	
NKI		PA0GAM	
ALP		PE1AAN	
ALK		DJ8ZB	
DYP		WB4UBD	
NID		KKSP	
AST		W6ILH	
NLZ		W7CNL	
GO		K5KSY	
NVJ		WA3DMH	
NKK		PA7479	
AN		KJTB	
ART		ZL4B0	
ARC		WAZWGS	
RG		EASZA	
NMR		ON5FD	
SK		ISVNY	
AE		KD3T	
IT		B DREWETT	
L60089		WERDL	
AL		K0SJ	
VK7		VE78IP	
ZAE		V58CT	
G ROBSON		NKSF	
VK801		PY2X0I	
VK9NYG	P	_ABDY	
VK0AB		G3NBC	

Radiation, Antennas, then what?



One of the first things that a radio operator is likely to notice after picking up a microphone is that the further away the other operator is the weaker his signal becomes. This startling revelation is due to the effect of a phenomenon known as 'the inverse square law'.

At some point in time the concept of the 'isotropic radiator' was thought up, which as theory goes, is an antenna that radiates equally in all directions simultaneously. Two examples of this that can be readily observed are the sun around which our planet revolves and fresh lemon being squeezed on fish. In each case the radiation effect is reduced to one quarter of the original every time the distance from the source is doubled. (In the case of the lemon it is easier to keep both eyes closed until the immediate threat has passed.)

Most radio transmissions operate with a concession in performance between a truly omnidirectional signal and one which operates on a tight beam in one direction only. Omnidirectional transmissions are great, you can hear them anywhere with the distinct limitation that at some finite point distant from the transmitter the signal will fade into uselessness. Unidirectional transmissions are pretty good too, you can hear them at an infinite distance away with power levels approaching zero. Here the difficulty arises when the transmitting point may have no idea where the receiving end is and vice-versa, a bit like two yabbies in a dam looking for each other. The nearest practical application yet of a device built for unidirectional transmissions is the laser beam, a marvellous device almost totally useless when it is raining.

With these sorts of conditions limiting the range of our radio contacts it seems surprising that we ever get over our own back fence. In reality there are lots of other variables at work to assist us like bouncing of signals off the ionosphere with all the seasonal and temperature variations that go with it to determine how strong a signal will be between two points.

Will there be any marked changes in communications in the future? If radio waves are still fashionable we may find everybody linked to each other via some gigantic telephone network controlled by four or more huge geo-stationary satellites hovering over strategic points of the globe. This would certainly make amateur radio obsolete, the nearest thing to exotic 'DX' may be dialing phone numbers at random.

How a signal radiates depends on what sort of antenna is being used. There are dozens of different designs and variations of antennas for different bands, and what they all have in common is the more aluminium there is in the air the more directional and less inefficient they become. The field of radio has got to the stage where only minor refinements have been made in the past twenty years and probably even fewer shall be made in the next twenty. However, what could happen is that an entirely new field may develop that could render the latest solid state UHF transceiver as obsolete as plaster flying ducks. This would be a shame, as antiquated as our present technology may seem to future generations, it still works.

Buffy's Bell in 'Gateway' Sept/Oct 82

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THUMBNAIL SKETCHES

Peter Brown VK4PJ
16 Bede Street, Balmoral, Qld 4171

Ralph Pepper, N742, 2VH, 1922.

Ralph's interest in radio began in Tamworth in 1922 when a PMG technician, Lionel V G Todd, who operated 2CR, taught him CW to pass the test with the local postmaster at 12 WPM, and an application for a "Wireless Experimenters Licence", N742, was granted.

The renewal, roneo Form "F", on 23/8/1923, cost ten shillings and came from Melbourne signed by J Malone, Chief Manager, Telegraph and Wireless. At this time Ralph used receiving equipment only, all parts of which were "homebrew" only, and crystals used were the best of experiments with minerals brought from various areas by his father. The best combination was "zincite" with "bornite".

Ralph and Lionel used "wireless" to time motor cycle races at Tamworth, possibly for the first time in Australia, in 1923.

One evening Ralph heard an "SOS" from the "Stirling", off NZ, a ship which eventually sank.

A bad shock from a "B" battery ended Ralph's wireless experiments.

Ralph was an RAAF photographer during WW2, and became Photo Intelligence Officer at McArthur's Headquarters.

Post war Ralph has been overseas forty five times, mainly as tour escort, and has a fine collection of slides. Brisbane has been Ralph's home for some thirty three years.

around the shacks of Norm Odger and Norm Husband at Charters Towers from whence came many fine technical men.

As a railway telegraphist, radio came easily to Jack and in the 1930s he and Andy Couper provided the two Wilkes Island staff with a regular mail service.

Commissioned as a Signals Officer in 1930, and later Captain, Jack had five and a half years of active service, also serving with Movement Control. Lae, Aitape, Hollandia and Nadzab were areas in which he served.

When in Townsville, with Leo Woolley, VK4FW, he pioneered broadcasting being licensed for 204.7 kHz experiments.

After the war, 1946, Jack returned to the Main Roads Department, where he started in 1933, and retired some years ago.

Jack keeps himself busy with family, electronics and some radio.

In 1938 he began on DF equipment and in 1938 completed a DF installation for the RAAF at Tulagali just before Japanese intervention. Vern was a Divisional Engineer of Radio, Qld, 1942-7, and in 1950 accompanied the Engineer in Chief to the International HF Conference in Florence Italy, and later spent some time in the UK. In 1954 he moved to Central Administration, Melbourne and became responsible for the planning, installation and development of National TV in connection with which he visited Britain, Europe and Nth America. In 1961 he was appointed Technical Director of the Australian Broadcasting Commission. In the light of his participation and notable contribution in both fields he could reasonably be considered one of the outstanding foundation members of the National Radio and TV services.

Vern has been able to contribute valuable information to VK4 history.

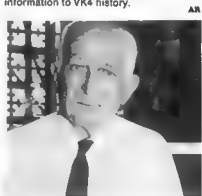


VERN FRANCIS KENNA VK2JR, 4FK 1926.

One of the best known and most respected amateurs of the 1920/30s Vern was at that time referred to as "brilliant" and nicknamed "Marconi" by his friends. As he lived up to this description there is insufficient space in this sketch to give more than a few highlights.

Born year 1908, he joined PMG in 1924, passed his AOCP in 1926, a keen student, he was behind treasure hunts, field days, etc, and invariably took portable equipment on camping holidays and on his yacht "June".

Vern was President of the Queensland Division in 1933 and Federal President of the IREE in 1968-9. At 4QG 1931-4, Melbourne research 1934, in 1935 qualified as an engineer and posted to Rockhampton.



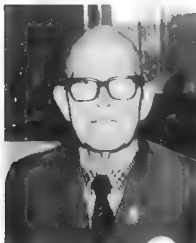
WIA INSERTS INTO AR



NOTICE TO WIA ZONES, CLUBS AND GROUPS

WIA Zone, Club and other Group Secretaries are hereby notified that inserts into AR henceforward will be accepted ONLY direct from a Division and then only by prior arrangement with the Secretary.


All inserts must comply with Postal Regulations and must be received not later than the 26th of the month preceding publication date.



JACK WOOSTER VK4VH 1930

One of the younger pre 1930 amateurs, born 1909, Jack spent his early days

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FEDERAL AWARDS MANAGER
8 James Road Kalamunda WA 6076

Many thanks to those readers who send me details of awards they receive on QSLs or over the air. My policy in selecting awards for this column is to give first priority to any Australian award. For overseas awards, I try to check whether the club issuing an award is affiliated to its National Society and that this National body is a member of the International Amateur Radio Union. Hopefully by following this policy, if things do go wrong, one should be able to get problems resolved. Generally difficulties arise over awards issued by non-affiliated overseas bodies.

LAKE GOLDSMITH STEAM RALLY AWARD

The Western Zone of the Victorian Division of the WIA will be operating from the Lake Goldsmith Rally using the call VK3BWZ. Power for the station will be obtained from a steam driven generator and an exhibition of old time radio equipment will be held.

WHEN: 0200 UTC 30th April to 0200 UTC 1st May

REQUIREMENTS: One contact with VK3BWZ on any mode and band

FREQUENCIES: 1.823 AM/SSB, 3.585 CW/SSB, 7.090 CW/SSB, 14.280 CW/SSB, 21.180 CW/SSB, 28.580 CW/SSB MHz

SSTV frequencies are 7.103 and 14.230 MHz

The cost of the award is \$2.00 or equivalent and applications should be sent to Maurice Batt VK3XEX RSD, Rokewood Junction, Victoria 3351

The following award information has been received from Jim Hogan ZL1AJQ

THE INTRODUCTION OF RAINBOW TROUT TO NEW ZEALAND CENTENNIAL AWARD

The Rainbow Trout (*Salmo gairdneri*) was transported to New Zealand from the Sonoma River (California) and arrived in New Zealand early April 1883. Since then this species has become well adapted to New Zealand conditions and world famous as a sporting fish as well.

During 16-23 April 1983 Taupo will be

host to guests from all over the world to celebrate the event with processions, beer fest, fishing contest, golf, art fairs, country and western events etc.

NZART Branch 60 sponsors the Centennial Award. The Award is an attractive colour picture on card suitable for desk stand or wall mount. Well worth the effort to get the Award.

RULES

1. Contacts with stations in the vicinity of Lake Taupo between and including the dates 13th April to 23rd April 1983
2. Same station on different day is a new contact
3. Same station on a different band or using a different mode on the same day is a new contact
4. Use of repeater(s) is allowed but counts as one band
5. Have to say the name of the Award during the contact

6. Basic Award is ten contacts. Gold stars for every ten after that
7. Overseas Awards three contacts
8. Enclose \$1.00 with copy of log to Centennial Award, Box 910, Taupo

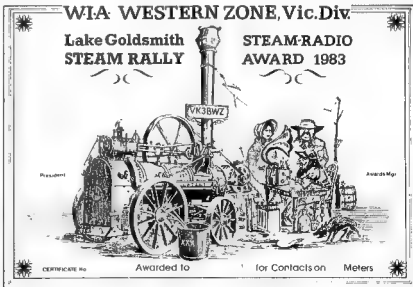
Branch 60 members will be active in a bands, all modes and intend to cover the ten days

THE WORKED AUSTRALIAN STATE POLICE AWARD

A request for information from any reader who knows where to apply for this award. It appears that applicants to an address given in 1981, are not receiving replies. If anyone knows anything about this award I would be grateful if details could be sent to me.

Until next month Happy Hunting, 73 es
DX Mike VK6HD

AK





NOVICE NOTES

Ron Cook VK3AFW
7 Dallas Avenue, Oakleigh, Vic 3166

So you are considering sitting for your AOCIP soon. Just to see how your study is going why not try to answer the following questions. Some questions have two correct answers and both are required.

1 The peak value of an AC voltage may be determined by:

- (a) The RMS value $\times 1.414$
- (b) The RMS value $\times 0.707$
- (c) The RMS value $\times 2$

2 When an alternating EMF is applied across an ideal capacitor the current will

- (a) lag on the applied EMF
- (b) lead on the applied EMF
- (c) differ in phase by 90° from the applied EMF

(d) differ in phase according to the magnitude of the applied EMF

3 The inductance of an inductor is 1 henry if:

- (a) a voltage change of 1 amp/second produces a back EMF of 1 volt
- (b) a change of current of 1 amp/second causes back EMF of 1 volt
- (c) a current of 1 amp is produced in the circuit by a potential of 1 volt/second

4 In radio frequency tuned circuits

- (a) the impedance of a series tuned circuit is minimum at resonance
- (b) the current in a series tuned circuit at resonance is maximum

(c) the current in a parallel tuned circuit at resonance is maximum

(d) the current and voltage in a resonant parallel tuned circuit are in phase

5 Indicate which of the following statements are true

- (a) a forward biased junction diode has a negative temperature coefficient of resistance
- (b) the currents and voltages developed in a temperature stabilized transistor amplifier can be used to temperature stabilize other transistors

(c) an emitter swamping resistor minimizes variations in emitter current caused by variations in the emitter-base resistance

(d) emitter-base junction resistance increases with increasing temperature and causes increased emitter current

6 Silicon diode type rectifiers for power supply use have the following advantages compared with valve rectifiers of comparable power rating

- (a) internal resistance is very low
- (b) peak inverse rating are very much higher
- (c) only a small amount of heat is generated
- (d) they easily withstand transient voltage peaks

7 Class A amplifiers are commonly used as

- (a) low power linear amplifiers in transmitters
- (b) audio and radio frequency amplifiers in receivers
- (c) oscillators in receivers
- (d) frequency multipliers

8 The primary purpose of a buffer stage in a transmitter is

- (a) to isolate the final stage from the aerial
- (b) to increase the frequency
- (c) to isolate the oscillator from the modulated or keyed stage
- (d) to increase the audio voltage input to the modulating stage

(From Westlakes Radio Club Monthly Newsletter May 1981)

The answers are on page 76



All correspondence to Amateur Radio magazine and the Federal Office of the Wireless Institute of Australia should now be addressed to Post Office Box 300 Caulfield South, Victoria 3162.



"... No this is NOT our SKed day ..."

— VK2EBM

HERE'S RTTY!

Bruce Hannaford VK5XI
57 Haydown Road, Elizabeth Grove SA 5112

to the frequency difference between the two carrier frequencies. Listening to either one of the keyed carriers you will note it is CW on off keying but not using the Morse code. However even if you have memorised the RTTY code you would not have much success reading it as it is normally at 60 wpm or one word per second.

Each RTTY character that is sent (letters, figures, punctuation marks etc) are all the same length, all have seven parts, all start with what is in effect a synchronising start pulse and conclude with a stop pulse. All the parts are equal in length except that the stop pulse is often slightly longer. The five parts between the start and stop pulses are used in the form of a code to represent the different letters and figures etc. All seven parts are either one of two states or conditions eg plus or minus, on or off, current flowing or not flowing, a high pitch or a low pitch audio tone or a high or low RF frequency etc.

The change from one state to the other is nearly instantaneous, there is no appreciable delay or gap between parts of a character or between letters in a word (if you can type fast enough). These alternate states are called mark and space, this coming from the early days of recording telegraphy on paper when a pen moving across the paper marked it when current flowed and left a space when there was no current flowing.

Nowadays normal amateur convention is mark means circuit closed, current flowing, a low pitch audio tone or the higher of the two RF carrier frequencies. Space means circuit open, no current flowing, a high pitch audio tone or the lower of two RF carrier frequencies. It is rather unfortunate that the high/low audio and RF frequencies are at cross purposes but that is the present convention and we have to live with it.

The difference between the two audio tones or the two RF carriers is known as the shift frequency and in present amateur use is normally 170 Hz, a decade or so ago it was normally 850 Hz but this is very rarely used today. Many commercial stations use a shift of 425 Hz and a few use 170 Hz. The normal tones used by amateurs are 2125 mark and 2295 space, sometimes a second set of tones are used and these are 1275 mark and 1445 space. You will note that in both cases the shift is 170 Hz. The first set of tones are known as high tones and the second set as low tones.

If a different shift is used it is normal practice to leave the mark frequency unchanged and to change the space frequency according to the shift, eg high tones at 850 Hz shift would be 2125 mark and 2975 space. Please note that 2975 Hz is beyond the pass band of many SSB filters

and this is why low tones were first introduced. However as amateur shift soon after became 170 Hz there is now little reason for using low tones as high tones 2125 and 2295 Hz are well within the pass band of typical SSB filters.

Looking at all the odd figures for mark, space and shift frequencies I decided there must be some reason for using these odd values and sought to find it. I discovered that each frequency is a multiple of 85 Hz in other words 85 Hz can be regarded as an unused fundamental and then all RTTY audio frequencies are harmonics of this frequency.

On the HF bands using an SSB transceiver with "audio generated" FSK it does not matter much what tones are used provided the shift is correct. This is so because the receiving station can tune to get any desired beat note but of course this will not change the shift. In the original signal transmitted a transceiver using low tones equipment sending to a receiving station using high tones equipment will have no difficulty as both have the same shift. Of course this is not the case with Audio Frequency Shift Keying (AFSK) where the tones are used to modulate a FM or AM transmitter.

When this is done it is obvious that both sets of equipment need to be using the same audio frequencies.

The normal frequencies used for VHF/UHF are high tones 2125 mark and 2295 space. If you want to use the same RTTY equipment on HF and VHF you need high tones equipment.

A RTTY AFSK signal consists of a single FM or AM carrier alternately modulated by two audio tones that are arranged according to the RTTY code.

HOW CAN I IDENTIFY RTTY COMMERCIALS?

Amateurs without RTTY equipment often wonder if this is possible on the HF bands and I give the following tips. Firstly commercial stations usually send very long messages without a break, often thirty or more minutes in length, on the other hand amateurs rarely use overs longer than about five to ten minutes in length.

Commercial stations often send RTTY at faster speeds than amateurs and commercials rarely use hand sent RTTY as they normally pre-record their messages to save valuable transmission time. Amateurs may also pre-record part of their overs but if you keep listening you will note that some parts of it are at a slow hand typing speed. With hand typing you will at times hear a continuous tone as the operator pauses to think what he will say next etc but this rarely happens with commercial RTTY.

RTTY picture courtesy — Les White VK5ZW

WHAT IS A RTTY SIGNAL?

Many non RTTY operators who have tuned in a RTTY signal and listened for a while to the two tones warbling from one pitch to the other have asked themselves this question.

The signal sounds rather like someone with their first and second fingers on two adjacent organ note keys rapidly changing pressure from one finger to the other.

On the HF bands RTTY is normally Frequency Shift Keying (FSK) and as such it is actually the alternate radiation of two unmodulated carriers of slightly different frequencies. To receive such signals the BFO must be on to produce two beat notes when slightly off tune to both carriers. As there are two carriers alternately present there will be two beat notes (unless one carrier is tuned to zero beat) in practice rather high pitched beat notes are normally used to work with RTTY equipment.

By tuning first one then the other of the separate carriers to zero beat you can then listen to the keying of the other one and also the beat note remaining will be equal

Commercials often use 425 Hz shift and amateurs normally use 170 Hz, you can check the shift by tuning one of the two RTTY carriers to zero beat and listening to the pitch of the remaining beat note this would normally be 425 Hz for a commercial and 170 Hz for an amateur station.

It is possible to educate your ears to detect the difference between amateur and commercial RTTY by listening and comparing them. Tune commercial RTTY outside the amateur bands and compare with amateur RTTY on about 14 090 MHz (seldom any commercials there).

Of course these tests are not infallible but if a RTTY station sends for hours on end using no hand typing and using 425 Hz shift you can be 99% sure it is a commercial.

A RTTY PIRATE

There is a RTTY Pirate active on 80 metres and sometimes on 40 metres as well. I call him a pirate as he never gives a call sign even when asked to do so. He comes on using RTTY and complains about RTTY being used in the Gentlemen's Agreement CW Only portion of the bands.

When the P pirate confronted me with his

usual question "Why are you using RTTY in the Gentlemen's Agreement CW Only Portion of the band?" I answered "If you give me your call sign I will tell you". However as usual he declined to do this. In the hope that this "Gentleman" reads this article I will now tell him and others that also think this way why I sometimes use RTTY in the CW Only portion of amateur bands.

VK RTTY presently has no Gentlemen's Agreement allocated band segments in which to operate as up to the present time the WIA has not seen fit to allocate an RTTY segment.

RTTY is a form of telegraphy closely akin to CW Morse telegraphy, it can even be sent as CW using a single keyed carrier. In a recent Sunday morning WIA broadcast (22/8/82) a Federal WIA representative said "RTTY would usually be found in the CW only portion of the bands."

Although commonly used amateur band RTTY frequencies were listed in the 81/82 WIA Call Book to the best of my knowledge the WIA has never asked amateurs to keep these frequencies clear for RTTY and generally speaking this is very seldom

done by other mode users. As RTTY operators are often denied the use of their commonly used frequencies by other mode users and are presently receiving no guidance from the WIA as to where they are expected to operate they then do the best they can under these circumstances.

In conclusion RTTY operators are just as much amateurs, WIA members and gentlemen as other mode users and until the WIA gives definite guidance to all amateurs as to what part of the bands they want set apart for RTTY it seems a perfectly gentlemanly thing to put our RTTY telegraphy in the telegraphy portion of the amateur bands. In fairness to the WIA I must add that the Federal Technical Advisory Committee (FTAC) are presently considering these matters and perhaps might even have made a decision by the time these words are published.

As most elementary subjects have now been covered I plan to make future articles somewhat more technical thus better serving those already using RTTY.

73
Bruce VK5XI
BR



EDUCATION NOTES

I have not yet had a lot of response to the request for information about classes planned or in progress. If you know of any classes about which I have not been notified, please forward details to me or the Executive as we do get requests for information about availability of classes in particular areas.

I would also like to build up a list of schools where some radio theory is being taught or some radio operating is carried out. I know there are many schools with licences and call signs, but do not know how active they are.

I wonder if this is an area where we could do a little more recruiting.

Amateur radio activity in schools seems to depend on the presence of an enthusiastic licensed operator on the staff. If that staff member transfers, becomes too busy, or loses interest, a group of potential amateurs is lost. I wonder if it would be possible to involve non-school amateurs in activities of this sort. I know of a couple of amateurs who regularly give some of their time to a school or group of children. I'm sure there are others as well that I do not know about, but I think there is probably scope for many more.

Many secondary and technical schools introduce electronics and computer technology at a fairly early stage, and many students would appreciate the opportunity to see some of the theory put into practice. Many schools also have a weekly 'activities' session where a visiting amateur could be fitted with a small group of students.

At the more senior level there is also the possibility of involving the students in some experimental activities which may be accepted as part of a Senior Certificate course.

Even in the primary schools there are opportunities to offer an occasional or regular visit. Even if the only contact is with a station a few streets away, it is an experience which the children will remember. We all know the enthusiasm which the Jamboree on the Air generates. Perhaps there is room for something of the sort in the schools even just on a local basis, or organised by a club within its own area.

Many schools now have licensed operators among their students. These students may need the support and assistance of older amateurs to maintain their interest and make use of any gear which the school may have. In many cases, the school principal and staff may be completely unaware of the potential value of amateur radio, and may not even know that they have novices among their students. They will certainly not have given much thought to the possibilities of using radio to broaden the scope and effectiveness of the existing curriculum. Perhaps we can help expand a few horizons.

I would be interested to hear readers' views on this matter especially from any amateurs who have tried to establish some such programme. It could be an interesting project for World Communications Year.

Finally I would like to repeat my plea from last month: If you have a complaint

about exam procedures, questions, or results, PLEASE bring it to me instead of just complaining on air. I cannot act on third hand or overheard information.

73
Brenda VK3KT
BR

Brenda Edmunds VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston Vic 3199



URGENT!

Please let us know of clubs and schools etc. starting theory classes.

Where, when, how much and whom to contact.

Contact Brenda QTHR



POUNDING BRASS

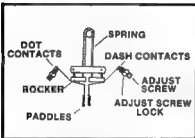
Marshall Emm VK5FN
Box 389, GPO Adelaide SA 5001

KEYS AND KEYS (Part III)

An iambic keyer is driven by dual paddles and there are various ways to go about engineering them. The simplest consists of two paddles which are held by spring tension so that they can be swung inwards against a common centre post.

This principle is used in paddles such as the HK1, which is used external to the keyer, and the same principle is used in less rugged paddles which are often used where paddles are built into the keyer.

More esoteric, but a delight to use, is the Benchner paddle. Each of the two paddles has its own post, so the contacts meet flush, rather than a flat contact meeting a round centre post, and they are capable of very fine adjustment. The arrangement looks something like this.



The Benchner is not cheap, but then again it is not a lot more expensive than the others, and you get what you pay for.

As far as the keyer itself is concerned, the

best introduction is to build one. There is a Heathkit keyer, but a less expensive alternative is based on the kit marketed by Dick Smith some years ago (it originated with WB4VVF in QST and was later published in Electronics Australia). Unfortunately, the kit as such is no longer available, but Mr Smith still has the circuit board, the Galbraith paddle (GK11) and, I presume, the instructions. The IC's and other components are readily available. In the original design the paddle was built into the keyer, but I prefer a separate paddle, so was able to put all the controls on the front panel, and jacks for all the externals on the back. I modified the design to use a plug-pack for power, and put in a switch for speed control rather than a pot, so selected speeds could be set quickly. It was also simple to add a rectifier circuit so the keyer can be driven by a cassette recorder — an alternative which seemed easier than building a memory for it. The paddle would be by far the most expensive part — other than that, the whole thing should cost less than \$20 and a few hours to knock it together.

If you are thinking of buying a keyer ready-made, there are dozens on the market to choose from. The basic iambic keyer circuitry has been reduced to one IC now (the Curtis 8044) and there is a Vibroplex paddle with a complete keyer built into the base! There is another, the name of which could be misconstrued, which has the keyer attached to a Benchner paddle.

Beyond the basic keyer circuit, which gives you dot and dash memory, automatic

spaces, and variable speed and weight, the main attraction of more advanced keyers is memory. A memory is very handy during ordinary operations, but for contesting it is almost mandatory. In choosing a memory keyer, you need to work out the size of the messages to be stored, and the ease of storing, editing, and using them.

Perhaps the most advanced line of keyers on the market today is produced by Advanced Electronic Applications, of PO Box 2160, Lynnwood, WA 98036 USA. Their top-of-the-line "Morsematic MM2" keyer has to be seen to be believed. Featuring two micro-computers, the MM2 will act as a contest keyer (automatically generating serial numbers), a beacon (sending a programmed message at programmed intervals), and a trainer in addition to 'ordinary' keyer functions. In trainer mode, MM2 can be programmed to start at any speed between 2 and 98 WPM, and, after an elapsed time of 0.1 to 59.9 minutes, it will have increased to any higher speed between 2 and 98 WPM. It will generate random characters or words, but if you want to check progress, you can select one of ten starting positions for use with an Answer Book. The prices for these keyers are amazingly low if you can get them from the US: if you get one from the Australian agents, you will pay the exporter's mark-up, the importer's mark-up and sales tax — you will pay almost twice the US price, but you still be getting a bargain.

Next month's column will be about signal reporting, and I promise some real food for thought. Till then, 73 and keep pounding.

■ ■



QSP

EXPLODING INTRUDER

In May 1978 the Soviets concluded the third of a series of killer satellite trials. They had tested slow, similar orbit, interceptions, fast bow down from above, and finally the very efficient fast pop up interceptions from below.

For four years European observers have waited for the next step and early in March 82 the familiar spread spectrum test signals through their covert telemetry were heard around 144.3 MHz.

As in previous tests things went slowly for a while and there was a break while the observing satellite changed from afternoon descending to afternoon ascending. Then after an isolated test on 25 May 82, tests proper began on 6 June. From then until 18 June 82 a series of about ten test runs were carried out culminating in two tests where target telemetry ceased abruptly (a point subsequently confirmed by US Secretary Hag).

There is a possibility that there may now be a continuous series of tests at intervals of two or three months. Observers should listen for wide band spread spectrum FM multi carrier signals centred on 144.3 MHz and extending up to 1.5 MHz either side of that frequency, on orbits transmitting azimuths 010 to 090° from UK. Orbital parameters are altered in flight and periods range from 100 to 110 minutes with targets usually at the higher period. Most tests are afternoon UTC Wednesdays, Thursdays and Fridays. Clocking pulses are superimposed on some telemetry.

Reprinted courtesy OSCAR News, January 1983

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AMERICAN OVER-THE-HORIZON RADAR: A NEW WOODPECKER?

Bill Martin, VK2EBM

33 Somerville Rd, Hornsby Heights, NSW, 2077

The idea of over-the-horizon radar was first conceived in 1946. However, as every radio amateur knows, the idea is in fact now a reality, with evidence appearing daily on the amateur band of frequencies, and formerly all were originating from the USSR.

However, we must now steel ourselves for possible evidence of a new source of radio interference emanating from the United States of America. Conventional line-of-sight radar uses frequencies in the gigahertz bands, and the radiation passes largely unimpeded through the ionosphere into outer space. With the OTHR system, which employs HF frequencies, a significant part of the much lower frequency is reflected down towards the earth's surface, reaching it at a distance well beyond the visual horizon. Hence the title, 'Over-The-Horizon Radar'.

The radar system is called a 'backscatter' system, meaning that the radar return pulse is reflected back to a receiving antenna reasonably close to the transmitting source. In this case, 110 miles. A certain portion of the transmitted energy is not backscattered towards the receive antenna (via the ionosphere) but is rather reflected 'downrange' for a further 'up-down' hop. Whilst theoretically this could be used to extend the range of the system to something like 3,800 nautical miles, the contractors describe the reliability of signals beyond the first hop zone as 'marginal'.

Skywave OTH radar has MINIMUM detection range of 400 nautical miles. Experimentation and feasibility testing began in June, 1980, and recently a \$US66.7 mill on contract was awarded to the General Electric Co, to begin a full-scale development of the project. The transmitter is situated at the Moscow Air Force Station, in Maine, USA.

The full range of the frequency bands will be

BAND A: 5.00 — 6.74 MHz
BAND B: 6.74 — 9.09 MHz
BAND C: 9.09 — 12.25 MHz
BAND D: 12.25 — 16.50 MHz
BAND E: 16.50 — 22.25 MHz
BAND F: 22.25 — 28.00 MHz

The range of the system is from 500 to 1800 nautical miles. The operating range 6.7-22.25 MHz is selectable in 1 Hz segments. An FM/CW waveform is used, and bandwidths of 2.5, 5, 10, 50, and 100 kHz can be selected, as well as waveform repetition frequencies of 20, 30, 45 and 60 Hz.

A Hewlett-Packard 141T spectrum analyser is used in the transmitting control room to aid in the selection of frequencies THAT NO-ONE IS USING. (We hope that this is efficient.) If a channel is clear, the radar system is brought up to power. Operators have a priority list of "most useable" frequencies for signal propagation.

Transmitter engineers use a 5 kW ionosphere sounder, excited by a computer-controlled signal generator, as a check on the ionosphere, the sounder sweeping from 2-30 MHz at a 100 kHz sweep rate. It returns from the ionosphere and is evaluated at the operations site. The main transmitters have a self-calibration check mode that requires about eight seconds to complete a calibration routine. A performance assessment operator is provided with a CRT display of range and amplitude, enabling him to compare the amplitude of radar returns with the noise floor. This ratio provides an instant assessment of radar performance. Target lines on the display appear as verticals when the return maintains a constant doppler frequency; the upper portion of the line slopes to the left if the target is accelerating, and to the right if the target is slowing. The FET receiver front-ends are digitally tuned by means of mercury-wetted reed relays and provide a dynamic range of 114-124 dB.

THE ANTENNA SYSTEM

The transmit antenna, situated at Moscow Air Force Station, Maine, (not USSR), currently consists of four separate 12-element sub-arrays, each designed to cover a different band of frequencies between 6.74 and 22.5 MHz. The radiating element consists of 'T' shaped dipoles, either vertical or canted 45 degrees with a length varying between 24 and 60 feet, according to the frequency band. The transmit arrays have a common mesh backscreen ranging in height from 45 to 100 feet, and a common groundscreen extending out some seven hundred and fifty feet in front of the arrays. Total transmit array length in the experimental installation is 2,265 feet. This will be extended to 3,630 feet in the full-scale system.

The new system will give uninterrupted coverage (apart from guarded frequencies) from five to 28 MHz. At the Moscow (Maine) Air Force Base, the station has its own 7.5 MW power sub-station. The 12 elements of each sub-array are fed simultaneously by 12 Continental Electronics transmitters, each capable of producing up to 100 kW average power. Total effective power delivered from the array is up to 100 MW.

The receive antenna site at Columbus Falls Air Force Station, Maine, contains an experimental receive array presently consisting of 137 triangular elements, each 17 feet high. The receive antenna has both a backscreen 50 feet high, and 750 feet wide groundscreen. Total length of the experimental receive array is 3,906 feet, with planned extensions to 5,230 feet. The received signals are digitised and formed into four simultaneous beams covering the same area as the range-azimuth sector illuminated by the transmitter. The four beams are processed almost simultaneously by the signal processor, which resolves each beam into 4,096 time delay (range) and Doppler frequency (radial velocity) cells. Processor functions include interference suppression and clutter blanking, peak detection and integration over a period of time. After processing, target 'hits' are passed to the operations processor which initiates and maintains tracks, registers them with geographical coordinates, formats the information for display and assesses the significance of the radar data, besides providing the operator with a variety of automatically-processed data-bases.

No north-looking radar is planned, due to ionospheric irregularities centred on the North Magnetic Pole. Longer-term plans, however, call for an installation looking south. Radio amateurs will be looking with interest at the development of this project.

Acknowledgement:
Interview: 1982, and
Aviation Week and Space
Technology, 1982.

AR

NATIONAL EMC ADVISORY SERVICE



"A FAIR GO!"

Tony Tregale VK3QQ
FEDERAL EMC CO-ORDINATOR
38 Wattle Drive, Watsonia, Vic. 3087

Communications is what the Amateur Radio Service is all about. Communicating by use of electromagnetic energy has its problems. One problem is simply that all radio receivers and all radio transmitters are potential sources and victims of interference for many reasons. When it comes to interference the average radio amateur just wants a fair go.

Over the years in almost all countries of the world radio amateurs have been blamed for causing interference to everything from television to garden mowers.

With the advent of television the general public became most critical of interference. Anything which, even in a minor way, disturbed their viewing ritual was sure to be given the 'twelve gauge shotgun' treatment.

Television receiver manufacturers had little difficulty convincing the general public that any interference experienced must be due to an external source rather than their product, because if you turn off the external source, the interference is removed — anyone could see this. What the manufacturers did not wish to make too public was that their equipment was very capable of receiving signals which were well outside its licensed operating bands with just as much clarity as those signals to which the equipment was intended to receive.

From time to time owners of record players, audio amplifiers and the like have complained about the reception of radio signals on these devices, usually from nearby radio transmitters. Devices of this nature are, or should be, designed to amplify audio signals such as music and speech and not respond to radio signals.

Again, manufacturers of such equipment can bob off complaints of interference by saying that if the radio transmitter is turned off, and the interference disappears, any interference must be the fault of the radio transmitter. The general public find this answer easy to understand. The truth is, of course, the audio equipment should not respond to radio frequency signals, if it does, then it should be licensed as a radio receiver.

Domestic equipment manufacturers were, and to a certain extent still are able to get away with the production of equipment which works well in a hostile free environment.

With the growing world of electronic gadgets the hostile free world is becoming smaller and smaller, to the extent that one piece of domestic equipment can, and quite often does, interfere with another

In the early days when television was a new and novel form of home entertainment, government authorities had very little information or political power to deal effectively with the real cause of the interference problem. It was much easier and less controversial to close down the amateur station or to restrict its operations to outside TV hours.

Government action, or lack of it, has done little more than sweep the problem under the carpet. With the growing world of electronics the 'buck' has to stop somewhere and soon!

Fortunately a number of countries have seen the 'light' and have embarked on a full programme of standards, regulations and mandatory legislation to cover the design, production, operation and import of domestic entertainment equipment and consumer products in respect of EMC and EMI.

In CANADA the steering committee on electromagnetic interference and electromagnetic compatibility of the Canadian Standards Association produced an in-depth study of radio interference and its impact on Canadian use of sensitive electronic and electrical equipment has concluded that standards are needed incorporating guideline limits both as to levels of radio interference which are tolerable and the levels of immunity which must be built into electrical/electronic systems. The committee has concluded that failure to develop and apply appropriate technical standards could result in a serious deterioration in most Canadian electronic systems and could increasingly threaten Canada's position in the domestic and world markets.

NORWAY insists that equipment showing insufficient immunity be modified by the manufacturers or importers — fitting any necessary filters.

SWEDISH manufacturers supply free upon request high pass filters and/or mains filters; radio dealers are authorised

by the Swedish Electrical Testing Authority (SEMKO) to make minor modifications to equipment to increase its immunity to electromagnetic interference.

WEST GERMANY has perhaps the most positive control of all forms of interference problems. The very involved and complex DIN/VDE Standards and Regulations seem to cover almost all situations, including being retrospective.

The West German Law requires that an EMC information sheet be included with the instruction manual of all radio and television receivers, also audio and Hi-Fi equipment.

The instruction sheet informs the purchaser that the equipment has been approved by the German Post Office as a sound radio/audio system/television receiver and complies with the current regulations of the German Post Office.

"see FTZ test number attached to the equipment".

"The FTZ number is your insurance that this equipment will not cause interference to other telecommunications services. The suffix letter S or SK indicates that the equipment has a high degree of immunity to unwanted signals (amateur, CB, etc.). Should interference be experienced please contact your local interference measuring service office."

In last month's Amateur Radio we reported on one of the latest countries to tackle the EMC problem... The United States Government has given the FCC power to control susceptibility/immunity.

The United States Communications Act of 1934 has been amended by Public Law 97-259, 1982, to read as follows.

Communications Act of 1934, as amended by
Public Law 97-259, 1982

§302(a) The Commission may, consistent with the public interest, convenience, and necessity, make reasonable regulations (1) governing the interference potential of devices which in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means

nsufficient degree to cause harmful interference to radio communications (2) establishing minimum performance standards for home electronic equipment and systems to reduce their susceptibility to interference from radio frequency energy. Such regulations shall be applicable to the manufacture, import, sale, offer for sale, or shipment of such devices and home electronic equipment and systems and to the use of such devices.

(b) No person shall manufacture, import, sell, offer for sale or ship devices or home electronic equipment and systems, or use devices which fail to comply with regulations promulgated pursuant to this section.

(c) The provisions of this section shall not be applicable to carriers transporting such devices or home electronic equipment and systems without trading in them to devices or home electronic equipment and systems manufactured solely for export to the manufacture, assembly, or installation of devices or home electronic equipment and systems for its own use by a public utility engaged in providing electric service or to devices or home electronic equipment and systems for use by the Government of the United States or any agency thereof.

Devices and home electronic equipment and systems for use by the Government of the United States or an agency thereof shall be developed, procured, or otherwise acquired, including offshore procurement, under United States Government criteria, standards or specifications designed to achieve the objectives of reducing interference to radio reception and to home electronic equipment and systems, taking into account the unique needs of national defence and security.

Note: Any minimum performance standard established by the Federal Communications Commission under section 302 (a)(2) of the Communications Act of 1934, as added by the amendment made in subsection (a)(1), shall not apply to any home electronic equipment or systems manufactured before the date of the enactment of this Act.

In Australia we ask our Department of Communications to look after the radio frequency spectrum with their hands tied behind their backs.

With the proposed new Radiocommunications Bill (Telecommunications Bill) in the pipeline, isn't it time that the Australian Government gave our Department of Communications the power and the staff to do the job for which they were appointed.

AM



AUSTRALIAN LADIES AMATEUR
ASSOCIATION

ALARA

Margaret Loft VK3DML
28 Lawrence St, Castlemaine 3450



L to R Alma ZL2AWP/VK3DFU; Mavis VK3KS; Bobby VE7CBK/VK4BRU; Margaret VK3DML; Jessie VK3VAN.

As we all know this is World Communications Year (WCY '83) and the editorial in January AR asked us all to make some small contribution to ensure it's every success. Last week the members of WICEN made a very large contribution to help those involved in the bushfire areas in VK3 and VK5. Some of our members live in these areas and I would like to publicly thank all WICEN operators for their time and efforts on behalf of all ALARA members.

This has shown how very necessary and valuable amateur radio can be.

Subscriber.

Jack VK3NTR joined 6.11.82

CONGRATULATIONS

Congratulations to Margaret VK3NZD a member of ALARA since 1981 and is the XYL of VK3DBJ.

And to Joy VK2EBX previously VK2VJV and 2KJC. Sorry about the error in the list in AR. I will compile a complete and up to date list and publish it again. Apologies to those I omitted and for the errors.

Thank you to all who have sent me photos and news. It does make my column easier.

Nice to meet some of the OMs and their XYLs at the Midland Zone Convention on Sunday 20th February at Strathfieldsaye. We felt it was very successful and hope you all enjoyed the day.

Mavis VK3KS is waiting for your application for the award, so look through your log book and see if you have talked to enough members to send for one. Rules are on page 40 June 1982 AR.

Until next month 33/73/88s to all

Margaret VK3DML

AM

EMC

(Electro Magnetic Compatibility)

If radio frequency interference is causing you a problem you are reminded that — "Advice on all types and aspects of interference (PLI, TVI, AFI, etc.) is available from the National EMC Advisory Service".

FORWARD DETAILS TO

VK3QQ,

Federal EMC Co-ordinator, QTHR.

WELCOME TO NEW MEMBERS

Suzanne VK2PSC joined 20.10.82

Lorraine VK4KLJ joined 20.11.82

Bron VK3NTD joined 6.11.82

Dale VK3PEH joined 26.11.82 (100th VK-YL)

Sponsored Members

Joanne KA6V joined 16.10.82

Cathy ZL2ADK joined 30.10.82

Christel DF1LV joined 11.12.82

Jeanne ZL2BOD joined 26.12.82

Kazuko JD1BBH joined 20.10.82

Denise WH2ADG joined 22.11.82

Lynn ZL2PQ joined 25.12.82

Maxine N6GGR joined 28.12.82



1982 VK/ZL/OCEANIA DX CONTEST

Jock White ZL2GX
CONTEST MANAGER

Many thanks to all who submitted logs. Compiling these is time consuming and no easy task. NZART does not ask for logs to be "re-written" — carbon copies of an operating log are sufficient — but of course legibility must play a part too.

Only one problem developed from the rules — the *summary* requires "prefixes worked on that band". This is an integral part of the *summary* and is of importance in log checking. Too many merely indicated the new prefix in the log. Maybe the listing in the *summary* is superfluous — even though it helps in checking — both for the operator and for the contest manager!

Logs from VK/ZL arrived in good time, as have most, but Eastern Europe presents a problem. To delay the receipt date presents further problems. It is important to promulgate the results as soon as possible.

The scoring system with a differential for different bands (introduced by NZART some time ago) once again received favourable comment. It must be stressed that with such a system (already giving full credit to users of different bands) that any multiplier system is quite out of order and can only provide distorted results.

The points allocated for operation on different bands might well be investigated however. Are the ratios reasonable when one compares the QSO rate on say 15 metres with that on 80? It must be kept in mind however that these "ratios" could vary from "year" (or group of years) to "year" depending on conditions.

Results are tabulated in "scoring areas" as this is the basis of the awards programme and so is logical. Additionally, individual band scores are tabulated and certificates will be issued to these place winners too.

Rule 8 (begin with any serial number between 001 and 100) is a "hangover" from the "good old days". Maybe we could all start at 001! Does it really matter?

The "all band" situation is covered elsewhere.

Clashes with other contests is always a problem and will get worse before it gets better! There seems to be more and more "international" contests — some of which fill roles which are difficult to understand.

A growing problem could be that of stations operating in an area which is different to the prefix! At present, NZART policy accepts the PREFIX for ZLs and not the location for the VK/ZL/O.

In many countries the prefix is no longer changed when a physical move is made.

This and that — "my first DX Contest — GREAT!... plenty of prefixes but many that I missed... ZL2SQ has lost none of his EP2BQ prowess!... model logs from youngest competitor Charlene VK1NEJ and from contest doyen AX4XA.

Finally... thanks to so many for the personal notes with logs — much appreciated.

A final final — the certificates which are typical and appropriate have presented a typing problem. I hope all concerned will understand.

SOMETHING TO TALK ABOUT...

What constitutes an "Open Section" entry in the VK/ZL/O? For years this has been accepted as the "highest score" and there is much to support such an opinion. It could be debated that the manner in which you make your points is your own affair — no one else's. Let's be fair and admit that this is a simplistic attitude nevertheless. Now we are in trouble. Should then a contestant in the "Open Section" operate on say two bands? — or on four? — or five? If on four — which four? or if on five — which five? I don't think it would be fair to say 10, 15, 20, 40, and 80 — any more than 15, 20, 40, 80, and 160 would be fair. So where are we? I'm quite sure that most — if not all — so called "All Band" scores in the major DX Contests are NOT "all band" scores at all. Undoubtedly they will be more than "one band" — but ALL BAND I'm sure NOT! Interesting isn't it. I'd like some opinions.

RESULTS...

Full VK and ZL results will be mailed to all award winners in VK and ZL. These results as well as "Overseas" results will be published in "Amateur Radio" and in "Break-In".

Trophies are the responsibility of WIA for VKs and NZART for ZLs (NB certificates will be mailed by NZART to all concerned — both VK and ZL — as well as overseas winners).

*** Suggested change in rules for OVERSEAS STATIONS in addition to VK and ZL prefixes, to include ALL Oceanic prefixes as multipliers.

*** WIA will organise the VK/ZL/O in 1983 and in 1984.

RESULTS

ZL CW	160	80	40	20	15	10	Total
Call							
ZL1AM0	—	—	263940	—	—	—	263940
ZL1BHQ	—	—	3080	22624	148980	51060	225744
ZL1BHQ	640	770	11600	—	12288	185055	210353
ZL1AIZ	—	—	132750	—	—	—	132750
ZL1MQ	560	—	—	10287	24920	25056	60283
ZL1APL	—	—	—	—	43290	—	43290
ZL1AIH	—	7600	—	—	—	—	7600
ZL1YHV	—	350	—	2173	2294	504	5321
ZL1A2E	—	810	—	—	—	—	810
ZL2SQ	1080	2160	105480	44370	247808	179088	579956
ZL2BR	—	—	10080	100891	42714	81096	234781
ZL2AGY	5880	4160	46970	13832	4386	83753	47559
ZL2AH	—	90	125	19610	27030	—	46855
ZL2AGS	—	—	—	—	—	—	check
ZL2AQJ	—	—	—	58305	640	—	58945
ZL3AGI	—	—	—	15840	—	—	15840
ZL4DE	—	40	—	15840	—	—	15880
ZL PHONE							
ZL1AKY	—	—	7685	30418	649350	687454	131475
ZL1AAS	—	240	31320	13900	93240	314475	453175
ZL1ANH	—	—	—	62952	237474	136620	437046
ZL1AXB	—	—	—	275025	—	—	275025
ZL1BXW	1800	1080	2375	15219	3630	207840	231944
ZL1MQ	480	—	—	1944	60956	26838	90298
ZL1M	—	—	5	8132	4590	24888	37615
ZL1AFU	—	—	—	—	28280	—	28280
ZL2AH	—	—	—	85440	33280	422400	541120
ZL2BED	—	10	—	1961	208320	104247	314538
ZL2AGU	—	10	—	34650	24120	46800	105580
ZL2HE	960	—	—	—	—	960	960
ZL2AVK	—	—	—	—	—	check	check
ZL3ABC	—	40	20	12324	35416	80919	128719
ZL3ME	—	40	5	285	—	—	29355
ZL3HT	2380	640	5	1050	—	—	6259
ZL4PX	1280	4560	2090	—	3264	36408	47602
ZL4QS	—	7961	—	—	—	—	7961
SWL							
ZL1-287	—	—	3480	21525	11214	9504	45723
ZL1-294	—	—	—	1150	196	—	1346

"20"	VK5MS	484337	AX4XA	69468	ZL1AXB	237025	ZL2BR	100891
	VK3BRM	192896	VK5AFX	25823	ZL2AH	85440	ZL2AOL	58305
	VK5QX	192098	VK5QX	24128	ZL1ANH	62952	ZL2SQ	44370
15"	VK2XT	545319	AX4XA	83390	ZL1ANH	237474	ZL2SQ	247808
	VK2APK	279708	VK2APK	71100	ZL2BED	208320	ZL1BHQ	148980
	AX8XX	186978	VK3AEW	38430	ZL1AAS	93240	ZL1AFJ	43290
"10"	VK6NSD	552048	AX8XX	355080	ZL1AKY	649350	ZL1BXW	185055
	AX2KCN	295276	VK2APK	263910	ZL2AH	422400	ZL2SQ	179088
	AX8XX	275200	AX4XA	198513	ZL1AAS	314475	ZL2BR	61996

VK PHONE	160	80	40	20	15	10	Total
Call							
VK1RJ	—	—	—	—	231750	—	231750
VK1NEJ	—	750	—	—	3888	67704	72342
VK1LF	—	500	—	1550	1380	810	4240
VK2XT	—	—	—	—	545319	—	545319
VK2APK	—	—	10030	—	279708	45264	335002
AX2KCN	—	—	—	—	—	295276	205276
VK2AYK	—	10	550	7360	35432	28580	71912
AX2VFI	—	—	—	—	—	68076	68076
VK2BS	—	—	—	—	28800	29880	58680
AX2BAM	—	700	—	24396	1400	14400	40896
VK2ABC	—	—	—	—	12880	—	12880
VK2PS	1960	40	—	1280	340	—	3620
VK3BRM	—	10	20	192896	2030	273402	488358
VK3AKK	—	—	—	—	183520	—	183520
AX3SM	—	—	—	—	43332	—	43332
AX3XB	—	3240	—	—	—	—	3240
VK4SF	—	—	—	—	—	228150	228150
VK4VHY	—	—	—	—	—	check	check
VK5MS	—	10	16600	448437	85360	174294	724901
VK5QX	—	—	3450	192098	53204	—	248752
VK5BW	—	—	—	—	40788	55590	96378
VK5NOD	—	—	—	—	56400	21420	79820
AX5OU	—	—	5	28210	16048	32832	77095
VK6NSD	—	—	—	—	—	552048	552048
VK6IH	—	40	2700	1536	62130	214020	280428
VK6JS	—	—	—	—	468	2416	2886
VK6ACG	—	—	—	—	—	check	check
AX7FD	—	—	—	1708	—	—	1708
AX8XX	—	—	8750	63441	185976	275200	533367
AX8NGL	—	—	—	—	—	54876	54876
VK8BE	—	—	—	460	—	108	568

VK CW	160	80	40	20	15	10	Total
No VK1 entry							
VK2APK	—	60	6355	4680	71100	263910	346105
VK2AYD	—	560	78320	15272	33680	37885	185633
VK2BAC	—	—	—	—	—	45792	45792
VK2DID	—	—	125	10560	13130	12948	36763
VK3AEW	—	350	3220	14654	38430	24150	80814
VK3BKU	—	280	3750	13013	—	—	17043
VK3AKK	—	1870	405	—	—	2112	4387
VK3JI	—	—	—	2365	—	—	2365
AX3AMD	—	—	—	—	—	2070	2070
AX3XB	—	—	—	466	32	—	518
AX4XA	80	120	1275	69468	83390	198513	352866
AX4AJ	—	—	—	—	—	55692	55692
VK4SF	—	—	—	—	—	16926	16926
VK5GJ	—	280	805	19581	18720	25974	65159
VK5QX	—	60	3600	24128	3700	5616	37104
VK5AFX	—	—	—	25823	286	—	26109
VK6IT	—	200	5	20190	6150	10191	36646
VK6RZ	—	—	28320	361	—	—	28681
VK6JS	—	20	—	165	—	432	617
VK7RY	480	1040	—	1080	576	969	4145
AX8XX	—	—	—	—	—	355080	355080
VK8BE	—	—	—	—	5160	7998	13158

SWL	160	80	40	20	15	10	Total
BCRS195	160	329	2035	612	3720	—	6847



CONTESTS



Reg Dwyer VK1BR
FEDERAL CONTEST MANAGER
Box 236 Jam son ACT 2614

CONTEST CALENDAR

APRIL

- 6-7 DX-YL to NA-YL CW Party
9-10 CARF Commonwealth SSB Test
13-14 DX-YL to NA-YL Phone Party
16-17 Polish Phone Test (tentative date)

MAY

- 7-8 CQ M Russian Test***
7-8 World Telecom Phone Test***
14-15 World Telecom CW Test***
14-15 Sangster Shield Test
17 World Telecommunications Day
28-29 CQ WW WPX CW Test

JUNE

- 11-12 6th VK/ZL Oceania RTTY Test
11-12 ARRL VHF Test***
18-19 All Asian Phone***
25-26 ARRL Field Day***

JULY

- 3-3 Venezuela Phone Test***
9-10 NZART Memorial Test (June AR)
16-17 International QRP Test***
23-24 Venezuela CW Test***

*The contests marked with *** are not yet confirmed...*

6TH VK/ZL/OCEANIA 1983 RTTY DX CONTEST

- DATE 11th to 13th June 1983
T.M.E. 0000-0800 UTC Saturday 11th June 1983
1600-2400 UTC Saturday 11th June 1983 and
0800-1600 UTC Sunday 12th June 1983

- CLASSES Three classes: (a) single operator, (b) Multi operator, and (c) SWL operators
Note: Logs of Multi-operators must be signed by all operators, together with a list of their call signs. Incomplete loggings are not eligible for scoring

- BANDS All Amateur Bands 3.5-28 MHz

- NUMBER Serial number will consist of
EXCHANGE (a) RST, (b) Zone Number, and (c) Time in UTC

- SCORING As per CARTG Zone Chart, multiplied by the number of countries worked, multiplied by the number of continents worked (maximum six)

After the above calculations, world stations add 100 points for each VK/ZL station worked on 14 MHz, 200 points for each VK/ZL station worked on 21 MHz, and 300 points for each VK/ZL station worked on 28 MHz (EXAMPLE: 720 points from zone chart x 29 countries worked x 5 continents worked = 104,400 points, plus (+) 6 VK/ZL stations worked on 14 MHz (that is 600 points) giving a total of 105,000 points

A station may be worked only once on each band, but may be worked on another band for further multipliers

COUNTRIES: Country count as per ARRL list of countries, except that each VK, ZL, JA, VE, VO, W/K districts count as separate countries. Contact with one's own country count as zero points for multipliers

LOGS Logs must show in this order: 1 Date, 2 Time (UTC), 3 Callsign of station worked, 4 Serial number sent, 5 Serial number received, and 6 Points claimed

CLOSING DATE: Logs must be received by the Contest Committee by 1st October 1983. The address for logs is: W J (Bill) Storer, VK2EG, 55 Prince Charles Rd, Frenchs Forest, 2086, NSW, Australia

SUMMARY SHEET: Summary sheet must show, call sign of station, name of operator/s, and address of same, bands used (a separate log sheet is required for each band), the points claimed for each band, number of VK/ZL stations worked, total points claimed and signature/s. Multi-operator station logs must contain the signatures and call sign of each operator

AWARDS Awards will be issued for 1st, 2nd and 3rd on a world basis and also on a country basis

The judges decision regarding the placings in the contest will be final and no correspondence will be entered into regarding the same. The logs become the property of the Contest Committee on completion of checking.

This contest is organised and conducted by the Australian Amateur Radio Teleprinter Society, PO Box 860, Crows Nest, NSW (Official club station is VK2TTY)

SANGSTER SHIELD CONTEST

Presented to the amateurs of New Zealand by Mr Ralph Sangster in 1927 the Sangster Shield is for annual competition to be won by the most efficient station. In this respect it should be pointed out that in addition to the efficiency of the transmitter itself, the efficiency of the operator is of the utmost importance. To win this contest marks an operator as one who not only knows how to obtain the most output from low power but also as one who is most proficient in the art of telegraphic communication

RULES

1 WHEN? 14-15 May 1983, between the hours of 8 PM and midnight on each day. The maximum period of operation will be eight hours.

2 POWER? To compete for the Sangster Shield the input to the anode of the final amplifier and/or any other stage in the transmitter must not exceed 5 watts.

3 CW to CW contacts only are permitted
4 All operation must be in the 80 metre band

5 (a) Contacts with any one station permitted each hour based on the "even hour" basis — e.g. 2000 to 2100; to 2200 etc etc

(b) It is not permissible to QSO the same station 'twice running' eg at the end of one hourly period and at the beginning of the next. A different stat on must be contacted before the 'same' station is contacted again

(c) Except that this is permissible when one of the two stations concerned has contacted a different station between QSOs concerned or when there is a time delay of at least five minutes between the contacts

6 All NZ entrants must be financial members of NZART

7 All radio regulations must be observed
8 In the event of any dispute, the ruling of the Executive Council will be final.

9 LOGS (a) On QUARTO size paper — preferably NZART log sheets

(b) Data in this order: date, time, call of station contacted, serial sent, serial received, points claimed

(c) ON SEPARATE SHEET a summary to show —

(1) Call sign, name and address in BLOCK LETTERS

(2) Number of contacts with stations using 5 watts or less

(3) Number of contacts with stations using 6 watts or more

(4) Number of contacts with overseas stations

(5) List of different Branches worked with number and name of the Branch in order as given in the Call Book, together with the call sign of the station

claimed as a Multiplier for that Branch
(6) Total Score — (total points multiplied by different Branches)

(7) Description of equipment used and POWER used

(8) Declaration that all contest rules have been observed

(9) UNDERLINE each new Branch claimed as a multiplier (Underline all entries for that QSO)

10. CYPHER SYSTEM (a) RST followed by Branch Number followed by Power input — eg 569/11/04. This would indicate a 569 report, Branch 11 and Power of 4 watts. Power will always be given as TWO figures — over 100 watts will be given as 99 while below 10 watts will be preceded by 0

(b) Overseas stations need give RST only but must receive the full cypher from the ZL station

11. SCORING (a) A1 Overseas Contacts — 10 points

(b) ZL contacts with power given as 5 watts or less — 5 pts

(c) ZL contacts with power given as over 5 watts — 1 point.

FINAL SCORE is total of points multiplied by number of different NZART Branches contacted

NOTE: Contacts with a contestant's OWN Branch are OK for QSO points but NOT as a multiplier

12. Mobile or Mobile/Portable operation is not permitted. The station must be operated from a fixed location for the duration of the contest

13. AWARDS (a) *Sangster Shield* to the highest scorer using 5 watts or less.

(b) *Transistor Trophy* to the highest scorer observing the rules as enumerated, but in addition who has been licensed for 12 months or less. Entrants must give Operator's Certificate number together with the date of issue

(c) Certificates to the first three contestants using 5 watts or less, similarly to "newly licensed" entrants

(d) Certificate to the contestant using

over 5 watts with the highest score made from QSOs with stations using 5 watts or less

(e) Certificates to Overseas Stations to the highest scorer in any cal area

14. Logs must be posted to REACH the Contest Manager ZL2GX, 152 Lytton Road Gisborne, New Zealand, on or before 2 June 1983

15. To give ORP Contestants a fair chance, (particularly with DX stations) higher power stations are requested to operate ABOVE 3 530 M-Hz

This contest has been opened to entrants from VK, with certificates to the highest scorer. The NZART welcomes all entrants from the VK areas and a good turnout is expected. Information on the other awards is available from the NZART Contest Manager ZL2GX 152 Lytton St Gisborne, NZ. Please note the date for logs to be posted.

CLUB CORNER



MIDLAND ZONE CONVENTION

The executive and committee of the Midland Zone would like to thank everyone who attended the annual convention at Stratford on Sunday 20th February

From reports heard of all who attended had an enjoyable day and we look forward to your attendance again next year

Special thanks to Stan Roberts of Bai Electronics, George Sumner of Sumner Electronics, Keith Haslam of Eastern Communications and the boys from Ballarat Amateur Radio Group for their attendance and providing interest for our visitors

Thank you to Bai Electronics, Scalar, Milnes (Bendigo) for prizes and to GFS and the Bendigo Premier Town committee for literature provided

Thank you also to the ladies of the zone who helped with the catering both in providing food and helping in the kitchen on Sunday

At the meeting on Friday night Ross VK3YXR gave an interesting talk on the ATV repeater in Bendigo and answered numerous questions from members. The repeater is working well and is being watched by a number of people in the Bendigo area

Next meeting of the Zone is on Friday 15th March at the Eaglehawk and Long Gully Community Centre and guest speaker will be Fred Toliver VK3DTG/K17HM and the topic is "Ham Radio in Alaska". All welcome at 8 PM

On Sunday 10th April a family day barbecue lunch has been arranged at "Burnewang House". More out near the field day site. Directions on the day via ch 11 147 150 MHz

All welcome, BYO

Friday 15th April meeting, guest speaker Neville VK3ACN — "More handy hints"

Friday 20th May meeting, guest speaker George VK3AGM — Digital readouts

Friday 17th June Annual Dinner at Bendigo Club

73/88 Margaret VK3DML
Secretary

AB

MOUNT GAMBIER CONVENTION

The South East Radio Group Inc in Mount Gambier will be holding its 19th Annual Convention on the Queen's birthday weekend the 11th, 12th and 13th of June

To maintain the popularity of this convention the South East Radio group is scheduling some new events which should prove interesting to all who attend. As was the case last year the events will start on Saturday afternoon to be followed by the excellent SERG dinner which will be followed by a night fox hunt and some terrific entertainment

The Sunday of the convention will be filled with many scrambles, fox hunts, sniffer hunts, beam heading competitions and hidden transmitter hunt. The prizes will be of excellent standard with an aggregate prize and trophy to be kept by the person who turns in the best overall performance. Another new innovation this year will be the encouragement of club participation. Every person who wins an event will not only score personal points and prizes but will also accrue points for his or her club. The best club performance at the end of the convention will gain them a trophy to take home

Trade exhibits in the past have been

excellent and have attracted much interest. This year will be no exception and any one requiring trade space should let the Convention Registrar know as soon as possible at the address below

The catering will, as usual be terrific. Convention registration forms will be available from most VK5 and VK3 clubs or from the Convent on Registrar by sending a SAE to PO Box 1103, Mt Gambier, SA 5290. Any enquires can be made by checking into the SERG Net, Monday nights at 1000 UTC on 3.585 MHz

D Edwards VK5FF
PUBLICITY OFFICER

AB





AMSAT AUSTRALIA

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NATIONAL CO-ORDINATOR

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INFORMATION NETS:

AMSAT AUSTRALIA

Control: VK3ACR
Time: 1000 UTC Sunday
Frequency: 7.064 MHz Summer
3.680 MHz Winter

AMSAT PACIFIC

Control: JA1ANG
Time: 1100 UTC Sunday
Frequency: 14.305 MHz

AMSAT SW PACIFIC

Control: W6CG
Time: 2200 UTC Saturday
Frequency: 28.880 MHz

Acknowledgements for information are extended to

Graham VK5AGR, Ed VK2ADJ
AMSAT Satellite Report

PUBLICATIONS

In February I included in these notes a review of the AMSAT-UK publication "Satellite Tracking Software for the Radio Amateur" by John Branagan

It is understood that some additions are now available and that these cover the requirements of users in the Southern Hemisphere. The cost of the additional pages is 40 p plus postage.

By the way the weight of the original book is 280 grams and the amendments 25 grams, so, send lots of money for postal charges if you want the book by airmail! In fact, send £8.50 in total.

Despite repeated requests to send only English currency AMSAT-UK continues to receive all types of notes and even Australian postage stamps, in future any orders which are not properly serviced will be returned as received by sea mail. If you don't know what to do to obtain a draft in English pounds speak to your bank.

OPERATIONAL UPDATE

AMSAT OSCAR 8

The telemetry from A08 indicates that all is not well with the battery voltage, possibly due to excessive temperatures experienced during the past twelve months. In order to conserve power and to assist in the normalisation of the battery voltage the satellite transponders are operating on one mode only each day, the present sequence is Mode A on Sunday, Monday and Tuesday and Mode J on Thursday, Friday and

Saturday. Wednesday is a non-operating day.

AMSAT OSCAR 7 and RS 1 and 2

Following reports that these satellites had been heard again after a long period of silence, a careful watch has been maintained in both the northern and southern hemispheres. Unfortunately no reports of activity have come forward but should anyone have information, supported by suitable evidence such as tape recording, please let VK3ACR know without delay.

UOSAT U09

Early in February the 'tip — mass release pyros' (explosive bolts) were fired without disturbing the satellite and in preparation for boom deployment, this step appears to be taking longer than anticipated.

The Navigation Magnetometer is out of calibration and once this has been recalibrated a complete list of equations will be issued. For the information of those decoding the telemetry it should be noted that Channels 5 and 6 with Channels 15 and 16 are reversed (Ch 5 is HY-Coarse, Ch 6 is HX-Coarse, CH 15 is HY-Fine and CH 16 is HX-Fine).

ORBITAL INFORMATION

Far more people use the Orbit Period and Longitude Increment figures to predict satellite passes than the more accurate Keplerian elements. However we have a problem as so many authorities publish their own unique figures, for instance in the current edition of Amateur Satellite Report no less than three different figures are quoted for two of our satellites! What is the simple amateur to do when bemused by the experts? In traditional Aussie fashion we will take a bet both ways by shooting down the middle and give the following figures with thanks to KA9Q.

SATELLITE	MODAL PERIOD Minutes	LONGITUDE INCREMENT Deg West/Orbit
OSCAR — 8	103.16911	25.794574
UOSAT — 9	94.76881	23.691313
RS — 3	118.51867	29.756458
RS — 4	119.39409	29.975570
RS — 5	118.55500	30.015748
RS — 6	118.71619	29.805877
RS — 7	119.19495	29.925660
RS — 8	119.76366	30.068025

FUTURE PROJECTS

No positive indications have been forthcoming on future amateur satellite operations which may include

- The ARNET proposal for two geosynchronous satellites
- Amateur operation by W5LFL during the flight of the Shuttle 'Challenger'

The whole project may be delayed due to the problem of hydrogen leaks on Challenger.

- The proposal to launch Phase IIIC with a DSCS satellite of the USAF. The launch of Phase IIIB is now believed to be scheduled for 27 May 1983.

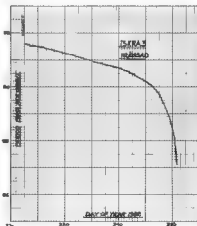
THE RISE AND FALL OF ISKRA 3

Russian Amateur Spacecraft ISKRA3, also known as RK03 was launched from spacelab SALYUT 7 at 0756 UTC on 18 November 1982, see Amateur Rad o, January 1983.

The satellite was at the relatively low height of 364 km at launch and without onboard boosters was destined to have a short life. This situation was ideal to study the decay characteristics of the satellite and consequently every effort was made to determine regular orbital times and to plot this parameter against the day of the year.

Initially orbit times were measured every three or four days whilst the rate of decay was fairly steady but when the orbit time became less than 90.5 minutes and the rate of decay increased substantially observations were recorded two or more times each day.

Contact was lost on day 350 (16th December) and I understand that this is the day of re-entry recorded by NASA. However some authorities claim that the satellite was heard on orbits up to 25th December.



The data recorded is shown on the graph, it is interesting to observe how quickly a satellite of this type decays once its orbital time falls below 90 minutes.

AR



VHF UHF - an expanding world

Eric Jamieson VK5LP
1 Quinns Road Forreston, SA 5233

All times are Universal Co-ordinated Time,
indicated as UTC

AMATEUR BAND BEACONS

FREQ. CALLSIGN LOCATION

50 005	H44HR	Honara
50 008	JA2IGY	Mie
50 060	KH6EQ	Pearl Harbour
50 075	VS6SI	Hong Kong
51 022	ZL1UHF	Auckland
52 013	P29SIK	New Guinea
52 100	VK0AP	Macquarie Island
52 200	VK8VF	Darwin
52 250	ZL2VHP	Palmerston North
52 300	VK6RTV	Perth
52 320	VK6RTT	Carnarvon
52 350	VK6RTU	Kalgoorlie
52 370	VK7RST	Hobart
52 400	VK7RNT	Launceston
52 420	VK2WJ	Sydney
52 425	VK2RQB	Gunnedah
52 435	VK3RMV	Hamilton
52 440	VK4RTL	Townsville
52 510	ZL2MHF	Mt Clunie
144 400	VK4RTT	Mt Mowbrall
144 420	VK2WJ	Sydney
144 465	VK6RTW	Albany
144 475	VK1RTA	Canberra
144 480	VK8VF	Darwin
144 550	VK5RSE	Mt Gambier
144 600	VK6RTT	Carnarvon
144 900	VK7RTX	Ulverstone
145 000	VK6RTV	Perth
147 400	VK2RCW	Sydney
432 410	VK6RTT	Carnarvon
432 440	VK4RBB	Brisbane
432 450	VK3RMB	Mt Buninyong

There have been a number of deletions from the beacon list this month. First is VK3RGG at Geelong now off due to problems with the co-sited 2 metre repeater VK2BNT on 52 500 apparently is not yet on the air so we jumped the gun on that one. VK5VF on 53 000 and 144 800 are both off the air due to bushfire damage.

THE SAD STORY OF VK5VF

Ash Wednesday 11 will long be remembered in VK5 and VK3 for the terrible destruction of major bushfires in both States. The 16th of February will be looked upon with some foreboding each year in future. For those not accustomed to the ravages of bushfires, the results have to be seen to be believed. The destruction is usually so total, so frightening for those involved, it is hard to comprehend. Even after nearly thirty years as a Fire Control Officer I still find major bushfires a very traumatic experience, and are to be feared.

To view the absolutely total destruction around the summit of Mount Lofty is a terrible spectacle, and this is the area where the VK5VF 6 and 2 metre beacons were installed. The flames passed through the towers of the transmitters of the television stations on Mount Lofty, and in so doing, destroyed a building which supplied power to the beacons, so putting them off the air. I went to the beacon site today (22/2) but didn't have the heart to wander amongst those people who were cleaning up the site (I would never want to be classed as a sightseer!). However, looking from the outside it appears the two antennae are gone, and probably the transmitters would have been roasted in their cubicle, so that's the end of that story!

Fortunately, Mark VK5AVO had taken the new solid state beacons back to his QTH previously after testing, so at least we still have something, but a lot of work will now be needed to get the beacons back on the air, a new tower, two antennae, feedlines, power supplies, together with a source of power etc. However, they will go back!

At this stage I have not heard of losses sustained by amateurs in the bushfires, other than an unconfirmed report of VK3XI losing all his antennae, but there must be some who have suffered severely in the two southern States. Maybe we could help if we knew.

BEACONS IN VK2

Tim Mills VK2ZTM, the State Repeater Co-ordinator, has written advising VK2BNT (mentioned above) was not yet on the air, with the sponsoring group, Hunter Branch Radio Group, in the final stages of submitting the various required details preparatory to licensing.

Tim also mentions the beacons VK2WJ at Dural use a common call sign generator, and to date there are three bands covered, 10, 6 and 2 metres. Jeff VK2BYI is waiting for the licence for 70 cm to come through. Later in the year it is planned to change the call sign to one from the "R" series which will be in line with identification requirements.

BEACONS IN VK1

A letter from Ron VK1RH advises it is proposed to change the frequency of the VK1 2 metre beacon to conform to WIA beacon band plan. The crystal for 144 410 has been purchased, but it is necessary to wait until the Department of aviation radar on Mt Majura is switched off for maintenance before changes involving aerials

and swapping the crystal can be made. The work involved is to change the antenna boom and replace the 2 metre vertically polarised omni-directional antenna (which used to be part of the VK1RAC repeater set-up) with 2 and 6 metre horizontally polarised omni-directional antennae.

These changes should allow the present 2 metre beacon to be heard much further afield, and ultimately lead to the establishment of the 6 metre beacon, a licence for which has been held for several years, but equipment is mostly in the design stages.

VK1 REPEATERS

Ron also mentions VK1RGI on Mt Ginini continues to give faithful service, no changes are proposed at the moment except perhaps cross linking to the 70 cm unit when it gets to Ginini. VK1RAC on Black Hill also continues with reliable service although its antenna took a lightning strike a few months ago which called for repairs. VK1RUC, the 70 cm repeater is to be located on Mt Ginini shortly, testing having already been undertaken in Canberra by Eddie VK1VP.

There is an active ATV interest group in Canberra and they propose to construct and operate a 70 cm to 50 cm ATV repeater, to be sited at Black Hill. Enquiries have been made to the VK5 ATV people regarding repeaters, particularly the mid-north repeater which has a level of sophistication the Canberra group would like to achieve also.

FORWARD PLANNING

Ron VK1RH draws my attention to a short article a couple of years ago in "AR" in which he proposed that the VHF bands be progressively "opened up" by first installing beacons as standard signal sources then progress first to wide band modes (FM) repeaters as necessary then to narrow band modes and linear translators (repeaters in the true sense). Coupled with this would be a progressive policy of curtailing outmoded facilities, with suggestions that no more 2 metre FM repeaters be sited in cities, and in five years no more in the country areas. Ron says the article largely fell on deaf ears, but he would still like the principle applied wherever possible. He has looked into the matter of 1296 MHz beacons and would like to see something along these lines in service in Canberra and other places in the future. There's only one way to go — and that's up in frequency!

THE SIX METRE SCENE

Six metres continues to provide a few

surprises. It is quite surprising the number of times JA stations are heard, mostly on 50 MHz of course, but occasionally the band opens to 52 MHz. Bob VK5ZRO has again filled in the gaps in my log book, which together shows what has been happening in VKs.

4/1 0910 VK6KZ, VK6YU. 6/1: 0932 VK3CGH, VK2BHO, VK2ZIR, VK1CJ, VK1VP. 7/1: 0640 VK2VC, 22ZNS, 22DH, 2BKL, 2BON, 2BOD, 2DDG, 2AYF, 2ZIR, 2EDB, 2ASZ, VK3ZOS, 3YPR, 3ZL, 3CGH and VK1CJ. 10/1: 0830 VK2ZNS, 2ZIR, 2BXT, 2BKL, 2ZGB, then at 1200 VK2ZV, 2ASZ, VK6XW, 6KPC. 11/1: 0945 VK400

13/1 0915 VK6BRO, 6XW, 6ZDR, 6SM, 6DZY. 15/1 0855 VK4DQ, VK2ZMG, VK6ZDY. 16/1 0444 VK6AUS, 7/1, VK7ZIF, VK2BKL, 12/2 0005 VK4WIM, 4ABP, 4ZYA, 4ZKR, 4WIT, 4RO, 0220 to 0445 JA1, 2, 3, 4, 7, 8, 9 and 0 quite a big opening with signals to 5 x 9 both ways. 18/2 1035 VK2ASZ, 2ZIR, 2BHO.

3/2 0345 VK6ZPG, 6/2 0100 VK4ZHO, 4ANR and others. 9/2 0720 VK4PZ, 4ZDK, 4ZLADT, 4ZL3TC, 10/2 0920 VK4RO, VK4TZ, 12/2 0005 VK4WIM, 4ABP, 4ZYA, 4ZKR, 4WIT, 4RO, 0220 to 0445 JA1, 2, 3, 4, 7, 8, 9 and 0 quite a big opening with signals to 5 x 9 both ways. 18/2 1035 VK2ASZ, 2ZIR, 2BHO.

Whist on the 8 metre scene. Gil VK3AUJ sends some data on what has been heard in Melbourne, adding that there are other contacts which have been made but details are sketchy. 18/12 VK4ADP, 4ZLADT, 24/12 2310B, 2310C, 30/12: Heard VK400 whilst mobile on the River Murray. 2/1: VK2BA, 2ZIR, 4ZL10P, 3/1: VK5ZDR, VK6GU, VK4NL, 4ZL, VK2ZFS, 22ZV, 22ZK, 6/1: VK5ZDR, 5AJM, 5ATN, VK3NM/5, 7/1: VK400, 4KAA, 400, VK5AGM, 5RO, VK3NM/5, 11/1 24AS, 24LHR, 13/1: VK6ZPG, 60X, 6ZTT, 6ZB, 6VP, 6DZY, VK5LA, 15/1 VK400, 4KHZ, 16/1 VK400, VK2ARA, VK5KMW, 17/1: VK4KJL, VK2Z00, 18/1: VK4ABV, 19/1: VK4, 22/1: VK400, 30/1: VK6RO, JA7 also heard by VK3AMK, 7/2: Reports of JA, KH6 and P29 being heard during the day. 13/2: Whist operating as VK3WIA during John Moye Memorial Field Day the band was open to VK4, VK8GF and JA.

Gil also mentions preliminary reports indicate the VKOH1 operation appears not to have worked anyone in Australia or Japan on VHF, although it appears possible VK TV sound was heard on one occasion. Other signals have been heard in the 0300 to 0400 time slot, one had the letters "DA" and one other undecipherable signal, all occurring between 6th and 10th February. No doubt most disappointing for the operators, but I am sure we will hear the full story in due course.

VK40AP appears to be a sad story. In spite of all efforts Communication is difficult as Peter has not been able to get his HF rig going yet (at 14/2). The lucky 26 who have worked him on 6 metres should send their cards to Peter Barclay VK3FR who is Peter VK40AP's manager. He will return by post all cards accompanied by an SASE. Cards via the Bureau will be answered the same way.

Signals were first heard from VK40AP in Melbourne by Geoff VK3AMK at 0030 on 18/12/82. First Melbourne station worked was Andrew VK3KAO at 0051. During a

series of openings Peter VK40AP worked twenty six stations in VK3, VK2 and VK7. Thanks Gil.

WHAT'S ON TWO METRES AND ABOVE

Gordon VK2ZAB has written an interesting letter from Berowra Heights, a northern Sydney Suburb, and all concerns 2 metres SSB, and from that scarce news State, VK2 7/2/83. For some weeks now I have been running skeds to make contact with Bill VK4LC at Eagle Heights, inland from Queensland's Gold Coast, using SSB on 144.015 MHz.

"We have now managed to make contact on three separate occasions, viz: 10/11 on 26/1/83, when Bill gave me 5 x 3 and I gave him 4 x 1, at 2025 on 29/1 with 5 x 4 and 5 x 1, and 2/2/83 at 1000 with 5 x 3 and 5 x 2. The first two contacts were made with the assistance of Bill VK2ZCV at Port Macquarie who can always work both of us, and who was able to switch between two antennas — one facing north and the other south specially for the purpose.

"The best contact was on 2/2 and made without the assistance of VK2ZCV. I don't know when the last 2 metre contact between Queensland and Sydney occurred, but it must have been a long time ago.

"I also believe the propagation medium is tropospheric scatter with possibly some tropospheric refraction assisting, although at times there is a hint of some elevation in the arrival of Bill's signals — suggesting an ionospheric path. Distance about 650 km.

"Bill runs 75 watts PEP to 2 x 19 element yagis, and I run 400 watts PEP to 4 x 9 element yagis, all horizontally polarised.

"Also worked from this QTH recently was Tom VK2DDG at Byron Bay (almost in Qld). Tom was 5 x 3 here at 1018 on 17/1/83, and he gave me 5 x 7, on 144.010 MHz SSB. That contact was as rare as the Sydney/VK4 one.

"There was a small opening to ZL at 0610 on 31/1 when ZL1BHX was worked for about five minutes, 5 x 2 in Sydney and 5 x 3 in New Zealand. Tony ZL1BHX was running 100 watts PEP to a 13 element 'flat top beam'. Everyone around here had been expecting an opening, and there were signs of it the day before, but the large scale opening did not eventuate. No concrete reports as yet on who worked who!

"Finally, there is continuous long distance activity on 2 metres SSB in NSW. Several stations including ZL VK2ZQX, Barry VK2KAY (both near Gunnedah), VK2BAU and VK2ADY (Peter and Don at Tamworth), Brian VK2AKU and occasionally Chick VK2DK near Narrabri, are on 144.200 almost every night and can be worked from Sydney at 1030. John VK2MX at Cooma, and several VKAs, Eddie VK1VP, Ralph VK1KR, Glen VK1KAA to name a few can and do work into Sydney at any time of the day or night. The same applies to stations in Wagga, Griffith, Cootamundra, Orange, Bathurst, and elsewhere. Coastal ducts enable SSB contacts between the extreme south and the far north of NSW frequently — on the coast that is, not much inland.

"The reason why these contacts are not reported more whilst contacts of similar distances in other States are, is simply that they are so commonplace that they are not news! In fact, it is a mystery to me why so much trouble is taken to erect repeaters because anywhere you can get via repeaters,

can be covered directly on SSB most times! Nevertheless, it is true that the real 2 metre band is alive and well in VK2.

"Incidentally, Bill VK4LC was formerly VK1BH.

Thank you for writing Gordon. I am so pleased you did because what you see when you see contacts as commonplace, we in other areas have no idea what degree of activity may exist in other places unless we hear about it, and there are plenty of people very interested in what you are doing, and would be pleased to hear about it from time to time. If for no other reason, the fact that such contacts are possible helps to convince some other operators of the need to upgrade their stations to share in such contacts, either with you and your group or in other areas.

Another paragraph in your letter which I did not include asks me to publish more information on 2 metre activity, and above. Sure, I would be most happy to do so, but very few people ever write to me to tell me what they are doing, that's why you hear so much about the Adelaide to Albany path, it's here to be reported! Six metres gets more airing because I can hear for myself what is going on in lots of other places, but that is generally not possible on 2 metres, so we have to rely on people like yourself to write and say what is happening — this alone might help to get others to write and so the news is spread!

TWO METRES AND ABOVE IN VKS

Bob VK5ZRO continues with his night 144 and 432 MHz contacts to Don VK5ZRG at Whylla over the 220 km path. Signals vary at times but are often 5 x 9 on both bands. 21/2 was a particularly good night, the 70 cm signals being 5 x 9 + 20 at VK5ZRO. Bob phoned me and suggested the signals might be strong enough for me to hear Don through my 60 dB attenuator (hill), as he was able to maintain good contact running 5 mW! VK5LP therefore fired up with 100 watts SSB on 70 cm and the first two-way contact for me was then resulted, signals being about 5 x 2. After trying for many months, the path was finally bridged! Don VK5ZRG reported picking up the Adelaide de ATV repeater on 579 MHz in colour, so conditions were good. Incidentally, a relatively new station in Ridgehaven, an Adelaide suburb, Bob VK5KRA has been working VK5ZRG on 144 with an 11 element yagi, and on 70 cm with a 14 element yagi, running 10 watts to both antennas.

5/1 1255 VK6WG, 2200 VK6KJ, both on 144 and 432 MHz. Neil, VK5CE normally resides at Woocarra, but became a bit cosier and stayed for a while at Hesso between Port Augusta and Woocarra recently, and worked a number of Adelaide stations on 144 and 432, on 12/1 14/1, 16/1 and others. On 29/1 VK5ZRO, VK5ZDR and others worked VK6XY on 432 at 1230, VK6BE on 144 at 1240 and VK6WG on 144 and 432 at 1255, all in Albany.

NEWS FROM WESTERN AUSTRALIA

Wally VK6KZ has sent a very interesting letter and I am sure readers will be interested in the following extracts from the letter.

"The Ross Hull Contest was an intense period of operating for me, using up to seven

bands, 52, 144, 432, 576, 1296, 2304 and 3456 MHz

"The most dramatic DX was the establishment of the Perth to Exmouth (North West Cape) path of 1130 km on 144 MHz as a regular part of our summer pattern. Steve VK6ASF previously active on FM put up a beam and operated SSB. I worked him on SSB for the first time on 11/11/82 and then during the Ross Hill Contest at 1547 on 4/12, 1348 on 15/12 and 2228 on 20/12 and on 24/12 at 1222 on FM via the Bunbury Repeater which is 100 km south of me! Steve replaced his yagi on 144 just before Christmas and reverted to two 5/8 wavelength verticals in phase for FM operation. Earlier that UTC day (the previous evening) Steve could not avoid triggering simultaneously repeaters along the north west coast to Karatha (310 km) and Port Hedland (500 km) as well as those to the south such as Geraldton (760 km).

Other stations worked to the north from here included Andy VK6OX on both 144 and 432 at 1311 on 11/11, 1412 on 15/12, 1340 on 23/12, and on 144 only at 1338 on 16/12 and 1309 on 24/12.

"Country activity during the Ross Hill Contest was good. Regulars on 144 and 432 were Tony VK6BV at Northam (85 km), Max VK6FN, Manjimup (250 km), Alan VK6ZWH Busseton (200 km), Beth VK6EL Busseton and Wally VK6WG Albany (380 km). Others who appeared on 144 SSB included Wally VK6ZWO Mullewa (390 km), Ken VK6AKT Katanning (240 km) and Laurie VK6GL, John VK6IM and Doug VK6ZDR, all at Bunbury (140 km).

"Apart from a good opening to Japan on 4/12 from 0500 to 0700, 52 MHz was relatively quiet as far as DX was concerned. My best day was on 28/12 when VK1, 2, 3, 5, 6 and 7 were worked. It was a big disappointment as far as Ross Hill punts were concerned.

"My portable work this summer was limited to a brief holiday period in Busseton (200 km south of Perth) and the best DX on 144 and 432 was to Andy VK6OX in Carnarvon (988 km). On 576 and 1296 MHz I worked Don VK6HK over a 193 km path. This contact on 576 MHz will be the basis of a claim for a new Western Australia DX record.

Wally VK6WG tells me that the Albany/Adelaide path has been very poor and that the Albany to Melbourne path almost non-existent on 144 MHz this season.

"By the way, the Indonesian to VK6 path on 144 MHz has frequently allowed stations along the north west coast to work on FM some Indonesian stations I haven't many details. Maybe your column could seek out reports from stations such as VK6AII in Port Hedland. As of 4/12/82 Steve VK6ASF in Exmouth had had one contact on 22/10/82. It is possible language is a formidable barrier (if anyone who has knowledge of these contacts would like to write to me with details I will be pleased to pass it on to others to read). VK5LP.

"During my overseas trip I visited the 1296 MHz beacon site at Majua Loa in Hawaii thanks to Paul J. K6GME the beacon keeper. It was built by the Chip N6CA in Los Angeles, and runs 25 watts to an antenna system of four 25 element loop yags mounted one above the other. The takeoff at the 2400 metre level is fantastic. Later again in the company of Paul I visited the Los Angeles end of the 1296 MHz

path from where Chip had heard that beacon. The beacon has an inbuilt receiver and the idea is to disable the transmitter to receive. Frequency is 1296 000 and CW keying. I listened to the Chip N6CA recording of the beacon signal and there is no doubt in my mind that the world record on 1296 MHz between Chris VK5MC and myself (VK6GKZ) will eventually be extended in excess of 3900 km! New Zealanders please take note and look out for VK6G!

"The Central States VHF Conference in Louisiana was tremendous with about a hundred and seventy fanatics attending. However, the conference opened my eyes to the strong role played by that simple challenge of 'Worked All States'. This achievement has resulted in stations gradually improving their gear and operating habits. Firstly, tropospheric conditions provide the nearby States. Then comes aurora and then meteor scatter and maybe Es. Then comes a stage when further States can only be added to the tally by moving to moonbounce. This requires better receivers and higher power transmitters. The serious operator is now using gas FET preamplifiers with noise figures on 144 MHz well below 1 dB and below 1 dB on 432 and 1296 as well. Both USA and Japanese devices are common. This interest in EME explains why two major activities at most VHF conferences are noise figure measurements of preamplifiers and antenna gains. One of the fascinating antennas had a 26 foot boom, and it was one of 16 in the operators array! No wonder 'QST' talks of antennas being damaged by wind and snow and the motto 'if it didn't blow down it wasn't large enough'.

"More than half of those attending the conference had, or were working EME. International participants were G3POI, LU3DCA, VE7CRU, ZS1FE, ZS1KE and VK6GKZ. ZS1FE/KE had been working with AMSAT on Phase 3B and Tom Clark W3IWI President of AMSAT was there too.

"I found little or no activity on 2304 MHz and higher, but interest in 2304 was emerging. At present the activity was linked to 'Amateur TV' reception of 'cable TV' being distributed between 2000 and 2300 MHz! There was legal action in Los Angeles when I was there with private individuals being accused of 'stealing' pay TV.

"All in all, I felt we have much to be proud of in Australia with some remarkable achievements accomplished without easy access to new components, 'engineering samples' and surplus components ex manufacturers and military. Certainly they have some sophisticated repeaters and phone patch arrangements through them with appropriate codes.

"I was in Tokyo for two full days and spent a lot of time in the suburb of Akihabara. This has many electronic/electrical outlets. Impressions were very favourable! Components were readily available from hosts of 'cubicles', about 2 metres deep and 2½ metres wide and loaded with items from the side and back walls plus ceiling. There were many of these in the one building and similar buildings were adjacent to one another. The building had these arranged around a U-shaped aisle, each cubicle had a different entrepreneur and many specialised in a particular area, eg transformers or hardware or instruments or computer chips etc, etc. And there were many

customers. Either there is a strong cottage industry or some very active home hobbyists!

"The amateur radio stores in Akihabara had a fantastic range of equipment. The most dramatic to me was the availability of 1296, 2304 and 5760 transverters! And loop yagi antennae for 1295 and 2304 MHz! The 1296 and 2304 transverters were all mode devices, the 5760 MHz FM and not on display. With the recent licensing of repeaters for the 430 to 440 MHz and 1.3 GHz band in Japan I guess we will see more commercial equipment for those bands, plus Phase 3B for 1.3 GHz.

"The 144 to 146 MHz region was crammed with JAs on SSB and FM and the paging systems above 146 MHz certainly provide good beacons for those in northern Australia and elsewhere.

"If the language barrier was not so great I am sure I could have learnt a lot about the state of the art for 1.3 GHz and above!

"Well, there are some observations I could go on for a long time. Clearly I enjoyed myself and learnt a lot but still think VK is the best!

Thank you Wally for allowing us to share in your experiences, I am sure there will be something of interest for most in your letter, and many would have liked to accompany you!

Wally also enclosed details of the equipment used for the reception of the 1296 MHz signal from Hawaii, and next month I hope to find enough room in this column to give you all these details.

CONCLUSION

Sorry about the lack of VHF notes last month. It takes a lot to knock me down but the throat infection which went through my whole system certainly made life difficult for five weeks. Not even the clacking of the typewriter could be tolerated at the critical time! However, I have survived and managed to turn the transmitters on once again!

Thought for the month: "In the good old days, the man who saved money was a miser; nowadays he's a wonder!" '73.
Voice in the Hills

COMMERCIAL CHATTER

VK2DIK HELICOPTER MOBILE

Dick Smith is off on the next leg of his around the world helicopter adventure.

He hopes to leave Sydney on the 1st June 1983 and head to North Queensland around the 2nd to 5th June. Then it will be off to Indonesia 6-12 June, Philippines 13-17 June, China 18-22 June, Japan 23 June-4 July, North Pacific 4-9 July, Alaska 9-17 July, Canada 17-19 July and finally back to the USA on 19-22 July.

Equipment aboard is a Collins HF220 r/g using upper sideband and HF frequencies will be 3.797, 7.225, 14.285, 14.146, 21.385 and 21.185 MHz.

Note: Normally operating on 21.385 or 14.285 MHz.

SPOTLIGHT

ON

SWLing

Robin Harwood VK7RH
5 Helen Street, Launceston, Tas 7250

Well a quarter of the year has passed and it is already apparent that HF conditions have deteriorated rather markedly. Propagation has been very poor on some long distance routes, mainly the east-west path. Some of the weaker stations closer to home, that are not normally observed because they are drowned out by the higher powered outlets from Europe or America, have been noticed, particularly on the 41 and 49 metre bands. The lower frequencies are also improving gradually, with the disappearance of the atmospheric electrical activity. Signals from the Latin American regions should be making their presence felt on the 60 and 90 metre band allocations by now.

One interesting trend I noticed this summer, was Asian signals coming in much earlier presumably because signals from Europe were down from normal. For instance the Home Service from Pyongyang (North Korea) was monitored here as early as 0700 UTC on 11.350 MHz. Several Chinese outlets of their domestic and foreign services were also noticed, but not at the same strength, peaking a little later at about 0800 UTC. On a lower frequency, a Sov et station with Domestic programming has been heard on 4.485 MHz as early as 0900 UTC. It is located in the Petropavlovsk region. I expect that this propagation will not continue, as the days lengthen in the northern hemisphere.

INDOCHINA

Those interested in trying to receive several low-powered stations in the Indochina region might give the range of 6.3 and 7.1 MHz a thorough scan. The best time to listen is between 1100 and 1300 hours UTC. One noticeable characteristic is the lack of stability on their transmitting frequencies, and have been drifting over 30 kHz or so. For example, Radio Vietnam in Laos has been logged between 7.035 and 7.050 MHz in Laotian and at 1200 UTC in English. Several provincial Lao and Vietnamese stations have also been heard about 6.5 MHz. However, don't get confused with several powerful Chinese stations also around these frequencies. Their transmissions are extremely stable. One aid in identification of Vietnamese stations, is to check Hanoi on 10.060 MHz, very often the provincial stations carry programming from Hanoi.

IN THE AMATEUR BANDS

There is an increasing trend for stations to utilise the exclusively amateur allocation between 7.000 and 7.100 MHz. While Laos

is very difficult to hear ordinarily, it is a pity that they are operating and intruding on the amateurs' allocated frequencies. Other nations known to operate on these frequencies are, besides Laos, China, Albania, Indonesia, Egypt and North Korea.

HELP INTRUDER WATCH

Recently, Bill Martin VK2EBM, our Federal IW Co-ordinator wrote to me, asking for help from SWLs in identifying and reporting intruders in the amateur bands. Some SWLs would have experience in identification of some of the broadcasters, and I personally feel that they could contribute to Intruder Watch. I recommend that they contact their State IW Co-ordinator (from the latest Callbook) and obtain some observer log sheets and forward them monthly.

One intruder I heard and logged recently on 14 MHz, was the Vietnamese News agency on CW. On the 23rd of February, it was heard on 14.070 MHz at 1130 approximately with copy in English about possible troop withdrawals from Kampuchea (Cambodia). This station has been observed previously on 14 MHz with copy in Vietnamese and French. Its operational frequency does seemingly vary, due to how occupied the CW portion of 20 metres allocation is.

Incidentally, the Voice of the Khmer Rouge guerrillas is easily observed here on 15.165 MHz and 11.680 MHz approximately at about 1030 UTC. The programmes emanate from Chinese transmitters and are quite loud. Naturally they broadcast in Khmer, the language of Kampuchea.

The station in Phnom Penh is very difficult to hear and the Voice of Vietnam is quite happy to put its point of view. They are easily heard here just above WWV on several 10 MHz channels. On 10.050 MHz, there is a relay of the Domestic service in Vietnamese, and 10.040 and 10.080 MHz carry Foreign Service programmes. English can be heard on the latter channel at 1000, 1100 and 1200 hours UTC and also on 12.030 MHz. However, I do find the announcers' diction very hard to follow at times.

REBROADCASTS

Recently, I made the observation that the BBC Cambodian Relay was being heard at 1200 UTC on 9.510. Well, I was right about the hemisphere but wrong on location. These programmes are being re-transmitted from the CBC transmitters at Sackville, New Brunswick and are on between 1100 and 1330 hours UTC for listeners in

Canada and the United States. The BBC have for many years also retransmitted Radio Canada international from their Davenport site for European listeners.

NEW AMERICAN STATION

The new American commercial station located at Saipan in the Marianas KYO "Super Rock" I heard it on 15.190 MHz and it has continuous 'rock' music with the occasional I/D in either Japanese or English. It appears to me that the same tapes are being used repeatedly, and there appears to be a lack of commercial advertising.

This compares with WRNO in New Orleans, the other American commercial station, although on weekends it is virtually indistinguishable from one of the many religious broadcasters that are about. For KYO suggest you try either 15.190 MHz at 0500 UTC or 11.900 MHz at 1200 hours UTC.

COMMERCIALS

Speaking of commercials, recently I got a shock listening to the Chinese Second Network on 8.320 MHz one night, when I heard Chinese ads for various goods and services manufactured in the PRC and available throughout SE Asia. This is certainly a change from hearing quotations ad nauseum during the Cultural Revolution of 1966-76. Listen at 1145 UTC on either 8.320 or 9.020 MHz and you might just hear what I heard. It could be possibly on a Monday only.

Incidentally as from 1st January Radio Peking has changed its call to Rad o Beijing. This has now brought it into line with the Chinese spelling which reflects more accurately the Chinese pronunciation. Other place names have also altered their spelling for example Guangdong (Canton), Fujian (Fochow) etc. However, Shanghai the largest city in China is unaltered. It has two vowels in inhabitants.

Well that is all for this month. Until next time, the best of 73 and good DXing!

Robin VK7RH

XX

**JOIN A NEW
MEMBER
NOW**

WICEN NEWS

Ron Henderson
FEDERAL WICEN CO-ORDINATOR
171 Kingsford Smith Drive, Melba, ACT 2615

A REVIEW OF THE PAST AND A LOOK AT THE FUTURE FOR WICEN

ORGANISATION

WICEN has come a long way organisationally over the past few years, principally because of closer and continuing liaison with the disaster control agencies in each state. Matters such as accreditation, insurance and compensation have been taken up mostly with acceptable results. Divisional activities have fallen into clear levels of responsibility and duties of coordinators established at local, regional and state levels.

Future organisational objectives must address simple state chains of command and insurance/compensation on coverage for small groups and single amateurs who don't feel they have to be on now that third party traffic is authorised.

ACCEPTANCE

Whilst there is no denying that acceptance of amateur radio by disaster control agencies has improved due to the efforts and liaison of WICEN, that acceptance is very fluid and frequently heavily dependent upon personalities on both sides.

Our objective here is to formally record that acceptance in some detail in the relevant state disaster plans and make it more independent of personalities of the day. Ideally it should be possible to initiate WICEN involvement from that plan and its contact lists.

Human nature being what it is we amateurs will only be called upon for help when other resources are exhausted and things look desperate. Then we will be expected to step in at full speed to stop the gap in a professional way and that's the challenge facing WICEN.

ACTIONS

With any volunteer organisation it's difficult to achieve a balance of activity and effort. Some operators will answer all and every call for assistance and do it for years (or until divorce strikes) others will respond to real emergencies, still others can only "monitor the repeater from home for a couple of hours". A small turnover of members prevents stagnation but on the other hand providing exercise communications for everyone soon leads to cries of overwork and underpayment. Besides, should many civic organisations get free communications whilst so many of our numbers are unemployed?

Our future objectives here are to know our operators and their availabilities and select civic aid exercises with care so that they do have training, PR or public exposure value. A guide is not to be interested in groups who are not genuinely interested in us.

CAPABILITIES

The capabilities of WICEN have changed over the years, keeping pace with advances in communications. The HF crystal locked, valve, battery powered equipment of the 50s has been replaced progressively by SSB transceivers and crystal locked FM gear which has itself been replaced by synthesised equipment. The use of repeaters has also enhanced capabilities. However old skills have been lost, such as CW message handling, filling the gap from the extremes of VHF FM repeater range to the first HF skip distance and working through interference both man made and natural.

For the future our capabilities/objectives must include matching current capabilities to disaster plan needs then testing and proving new techniques eg RTTY, portable repeaters, field antennas, field power supplies to name a few. In a phrase be progressive and not stagnate — remember our strength is our flexibility both equipment and frequency wise. Here's a thought to bring you down to earth, "how much traffic could be passed from Sydney to Melbourne on HF SSB should the public circuits be disrupted?"

PURPOSE

Coupled closely with capabilities, which are really the response, is purpose or demand. Rather than tell the authorities what we can do and leave them to fit it into their plan, an approach which was used frequently in the past, let's be more progressive and see if we can solve their communications problems. To do this it's necessary to analyse the disaster plan, or if one does not exist, carry out a threat analysis, grouping threats into probability of occurrence and severity of disaster effect classes. Then we must aim to satisfy the most likely or frequent occurrences whilst still retaining some ability to meet the rarer circumstances. Such an approach perhaps conducted as a "think tank" of members retains their interest and sense of purpose in WICEN.

AWARENESS & TRAINING

Historically, semi-closed groups went about training and provided WICEN communications in some isolation but in recent times the need for awareness and recruiting has led to a greater openness and exposure. Some training activities, both civic aid exercises and WICEN only sessions can be used to provide on-air awareness and for recruiting of new operators. Training in the past has been in voice procedure and message handling whilst neglecting our two great assets, flexibility of frequency and equipment.

Future awareness objectives must be targeted to get every Australian amateur aware of the existence and need for emergency communications, the role of WICEN, the existence of WICEN calling

frequencies, net discipline and how to use basic voice procedure.

Training objectives for WICEN operators will need to be expanded into frequency management considerations and into field operations. The first can be associated with IPS instruction, interstate nets and DX hunting whilst the latter can be achieved through field day and public display stations.

COMMUNICATIONS

A never ending challenge, accomplished in the past through close-knit groups, printed news sheets and personal liaison. Regrettably printing and postage costs have taken their toll of late so our communications objectives must be to achieve amateur awareness through our magazine *Amateur Radio*, divisional broadcast items and regular WICEN networks supplemented by divisional and club meetings. But are you aware that only half the Australian amateurs belong to the WIA and receive AR, and a lesser number listen to broadcasts. The challenge then is to make them all aware of our existence and activities and perhaps reduce the on-air tuning up on working emergency networks.

THIRD PARTY TRAFFIC

What has been the impact of third party traffic privileges? Not to fill all our bands each night with networks passing amateurgrams of trivia around the net on as some diaphanous feared and predicted. Sadly perhaps it's been the opposite as the amateur movement could easily sustain a basic traffic framework, particularly to isolated islands (I am aware of the useful VK0 traffic). Some have suggested that WICEN could become the framework for a national traffic network system whilst others have decried its lack of SES standard operating procedure. Personally I feel it's too soon to know just what will happen, perhaps the WIA missed the bus by not appointing a national traffic manager however they did produce a Policy Statement and operators' guide lines in keeping with their low key approach.

The effects on WICEN have been generally good, for despite the lack of formal changes to the regulations, far more civic aid exercises have been conducted. On the negative side however are the lost WICEN members who have seen no need to continue their affiliation and are now potentially exposed to personal risk liabilities whenever they become involved in emergency communications.

This gives rise to the last objective; to make membership of WICEN attractive and advantageous to the civic minded amateur who's willing to assist with communications in emergencies.



VK2 MINI BULLETIN

Athol Tilley VK2BAD
Box 1066, Parramatta NSW 2150



COUNCIL REPORT

Dv's onal Council met on the 11th of February 1983 at the WIA Parramatta building

The motion carried at the December meeting to invest \$5,000 in AGC debentures was rescinded as they had been suddenly withdrawn from the market. Other investments will now be considered.

A Yaesu FT107 was purchased to replace the existing HF transceiver at Dural. This will provide greater reliability for HF broadcasts and callbacks.

Fourteen new applications for membership for February were accepted.

Federal Councillor Stephen Pail, VK2PS, presented a report on WCY-83, identification changes for RTTY and ASCII transmissions. Melbourne mast enquiry, callbook entries, VK/ZL Contest Manager, 1983 WIA Federal Convention and subscription renewals. Five federal convention agenda items from VK2 were discussed; uniform concessions for students and pensioners, discounts for students and pensioners and voting representation at conventions. It was decided that this division would be represented by the Federal Councillor Stephen Pail VK2PS and Alternate Councillors Wally Watkins VK2DEW and Tim Mills VK2ZTM.

Tim Mills presented a report on repeater applications, interference and breaches of regulations. It was noted that four Sydney repeaters had no identification, others had inadequate identification and four country repeaters were not at the site for which they were licensed. Council resolved that a letter be sent to each club involved advising them of their breach of regulations.

A amateurs should be aware of the need to observe regulations as breaches detract from the image of the Amateur Radio Service being responsible and self policing. Investigating the above breaches involves the DCC considerable time and increases their costs, with a consequent rise in licence fees.

It was decided to rescind the official opening of the WIA building at Parramatta to the 25th of May, 1983. Due to uncertainties as to the Minister for Communication's attendance, no other alternative was possible. When the Federal Election has been decided, new arrangements will be made and members advised.

LIVERPOOL FIELD DAY

The Liverpool & Districts Amateur Radio Club will be holding its field day on the 24th of April, 1983 at the Fairfield Showground.

The programme of events is:

8.45 to 9 AM — HF all band scramble

9 AM — start of observation trial.

9.30 to 10 AM — 10.2 m DF foxhunt.

10.30 to 10.45 AM — VHF/UHF scramble, repeaters can be used.

11 AM disposals open.

11 to 11.30 AM — audible children's beeper hunts.

11 to 11.30 AM — junior (under 17) 2 m pedestrian foxhunts.

11.30 to 12 noon — senior (over 17) 2 m pedestrian foxhunts.

12 to 1.30 PM — lunch.

12.15 to 12.30 PM — meet the people contest.

1.30 to 2.30 PM — 2/10 m 2 transmitter DF foxhunts.

3 to 3.30 PM — talkin foxhunts on 2 m, 10 m, 70 cm (minimum of two starters needed for each band).

3.45 to 4 PM — 2 m pedestrian talkin hunt. All 10 m events are on 28.47 MHz; all 2 m mobile, talkin, pedestrian talkin events are on 146.55 MHz, 2 m pedestrian events on 144.475 MHz, 70 cm talkin event on 439 MHz.

A grand raffle with the prize being a Commodore VIC-20 computer with cassette and game joystick (value \$412) will be held. Tickets are \$1 each or 3 for \$2.

Entry fees for the field day are; adults \$3, children attending school over 12 years \$0.50, families \$5.

Trade displays of amateur gear and home computers will be held and there will be technical and general interest quizzes, children's crossword and coloring competitions and other attractions. Food and drink will be on sale.

For advance purchase of raffle tickets or enquiries about the club or field day, write to PO Box 690, Liverpool, NSW, 2170.

PUBLICATIONS

A new publications price list was included in the AGM booklet posted to all financial members. Please be sure to refer to it for your purchases.

8TH CONFERENCE OF CLUBS

The next Conference of Clubs will be held at the Parramatta WIA building at 109 Wigram Street, Parramatta commencing at 10 AM on Sunday, the 17th of April.

Agenda for the meeting has been sent to all VK2 Affiliated Clubs so that they can discuss the motions with club members as a guide for their delegate. Agenda items for the 1983 WIA Federal Convention will be discussed under General Business and the VK2 Federal Councillor, Stephen Pail VK2PS, will note members' views as a guide to his vote at the convention.

These Conferences of Clubs are an advisory policy making body of this division and all affiliated clubs should obtain the views of their members on agenda items and attend the Conference of Clubs.

Any member is entitled to attend as a spectator and you would certainly gain an insight as to the workings of the conferences and the important place they occupy in the operation of this division.

Confirming contact report

DATE	UT	TO	RST	MHz	2 Way	CS	PSK	END
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Rig
Ant

73

WIA QSL CARDS

As you will see from the sample, WIA QSL cards are now available from this division. You can arrange with your local printer to have the cards overprinted with your own call sign or you can use a rubber stamp as the cards are a smooth non glossy finish. They are available from the office in lots of one hundred for \$5 or \$6 posted.

Card colors are white with either black blue or red print; blue with black or blue print; green with black print; yellow with black or red print.

Please indicate a second card color/print preference as some combinations may sell out. Send orders and cheque to PO Box 1066, Parramatta, NSW 2150.

COMING EVENTS

8th Conference of Clubs 17th April at WIA Parramatta.

Liverpool Field Day: Sunday the 24th April at Fairfield.

WIA Federal Convention: 23 to 25th April in Melbourne.

NSW members and clubs are invited to submit news items for inclusion in these notes to WIA NSW Division PO Box 1066, Parramatta 2150 and mark the items "For Mini Bulletin". Items for June AR must reach us by the 22nd of April.

Athol VK2BAD
AB



QSP

KEEP THAT NOSE TO THE GRINDSTONE

The longer you work the longer you live, suggests a study by the US Social Security Service. It found that among men who retired at 62, some 81 per cent were alive six years later. But among those who kept on working, 86 per cent survived for at least six years.

Business Review Weekly



VK4 WIA NOTES

Bud Pounsett VK4QY
33 Lasseter Street Kedron, Qld 4031

April's Radio Club Workshop Month in Queensland. On the weekend of the 9th and 10th, delegates from many parts of the state will assemble at Griffith University, where they will stay until Sunday afternoon. They will eat, sleep and work at the University for something like 20 hours of work time.

Griffith University, not far from the famous QEII stadium, was the Games Village last year and only ten minutes on the Freeway from downtown Brisbane. It is the perfect location for our Radio Club Workshop.

The Radio Club Workshop is an expensive exercise but it is money very well spent. The total cost is estimated to run to about \$200 per member of our total membership of some 1200 or so members. The workshop is the forum where clubs, affiliated with the division, can convey the views of a large proportion of the amateurs of Queensland to our state council. The discussions have a large bearing on decisions made by council, not just for one year, but well into the future. It also briefs our federal councillors in preparation for the forthcoming Federal Convention.

It is a two-way affair, the delegates take back a wealth of information regarding the council, the services offered members of the division and most important, the fact that council is a body of amateurs, ordinary amateurs, just like themselves. Some time back a very popular slogan was "BREAK

DOWN THE BARRIERS". This is just what the Queensland Radio Club Workshop does.

In a letter to Queensland Club Secretaries recently, David Jones, VK4NLV, had this to say:

"It should be noted that the highly successful concept of policy-investigating committees will be continued with this year's Workshop. Federal Executive has taken great notice of the policies developed by last year's Workshop, and we are certain that they are eagerly awaiting this year's results. That the Federal Executive are now reviewing basic Federal Policies in so many areas is a direct result of the input of your delegate at last year's Workshop."

Some of the club motions to be debated will be:

That RTTY segments be proposed on the HF bands as follows: 3.545 \pm 5 kHz, 7.045 \pm 5 kHz, 14.090 \pm 10 kHz, 21.090 \pm 5 kHz, 28.090 \pm 10 kHz, 28.490 \pm 10 kHz.

That training kits be made up to assist the uniformity and quality of training by club instructors in the amateur operator licence courses.

It is interesting to note that two clubs, Mackay and Gold Coast have similar motions restricting frequencies within bands for all contests.

There is also the perennial proposal regarding the expansion of novice bands. There will be some very lively debating!

The NSW Division has expressed some interest in a similar workshop in that state.

The Queensland Council has invited an observer from VK2 and it is pleasing to note that this has been accepted. Guest speakers at the workshop will be Mr David Jul, MHR, Mr Sam Voron, VK2BVS, Mr Kev Whiting, the State SES Director and an officer from DOC.

A report on the 1983 Radio Club Workshop will appear at a later date.

IT'S HISTORICAL

Peter Brown, VK4PJ, VK4 Division Historical Officer hosted another successful luncheon at Coorparoo RSL in February. Included were Perc Wood, Ex 4RO 1927 from Benora Point, NSW; Steve Fittell, VK4YF, 1929, Gympie; Alf Bauer, 4AT, 1926, Arther Walz, VK4AW, 1926; Ralph Pepper, 2VH, 1922; Jack Wooster, VK4VH, 1930; and Norm Odgers, VK4ANO, 1924. Many were the stories told by all these "OLD TIMERS" and a lot more material was gathered by Peter.

Do any of you living in other states have memories of incidents of historical value to Queensland. Maybe you lived here in the 20s and 30s and can contribute to Peter's files. Peter Brown, VK4PJ, is QTHR or: Via Box 638, GPO, Brisbane, Qld 4001.

Bud VK4QY
AR



FIVE-EIGHTH WAVE

Jennifer Warrington VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

As I am writing this it is exactly a week after Ash Wednesday, and the dreadful devastation done by the bushfires is still uppermost in everyone's minds. To date I have not heard of any South Australian amateurs who have lost homes or lives, but I gather that there were at least three VK3s who were affected, to them we send our deepest sympathies and the hope that the legalities will be expedited quickly so that you can start rebuilding your lives.

The closest 'shave' that I have heard of over here, was that of Marlene and Brian Austin (VK5QQ and VK5CA respectively) who lost everything outside the house — the fire coming to within two feet of the house! I think that the sprinkler system, on the roof, and the fact that they had spent many hours during winter and spring cutting back and clearing the under-

growth, possibly saved them.

I am sure that a full report on the activities of WICEN over the last week will appear on these pages in the near future.

For now, let me just say, a very heartfelt 'Well done and Thankyou' to John Mitchell VK5JM, our WICEN controller, and all the volunteers who worked many long hours in difficult and sometimes hazardous conditions. I hope that the 'Knockers' and 'Button-pushers' on the repeater never need the help of WICEN, but if they were in that position perhaps they would be a little more considerate.

I am currently playing host to five members of my family who are spending seven weeks holiday with us, from England. Not only have they been horrified by the devastation, which has wiped out many of the beauty spots which they had visited

only days before, but also the inaccuracies in the reporting of the bushfires in the British press, which reported that Adelaide was ringed by fire, and 80% wiped out! We have had phone calls from worried relatives and friends including amateurs that I talk to on a fairly regular basis.

A very pleasant surprise to our February meeting was a picture of the Burley Griffin Building done in poker-work by Pete VK6NOD (Noddy, as he likes to be called). We thank you, Pete, and it will be hung in the building for all to admire.

DIARY DATES

23-25th April

26th April

24th May

31st May

Federal Convention

Annual General Meeting

Getting Started in RTTY

John Mitchell VK5JM

Buy and Sell

AR

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE

NOTES ON THE PREDICTIONS

The mode of propagation used by IPS in compiling their predictions are reflected in the bar charts used to convert the Graflex symbols into a graphic picture

When generating the Graflex charts (reproduced in a number of publications) the following symbols are used

- 1 " " — Propagation is possible but probably less than 50% of the days of the month
- 2 % — Propagation is possible between 50% and 90% of the days of the month
- 3 "F" — Propagation is possible by the first F mode on at least 90% of the days of the month unless there is a severe ionospheric disturbance
- 4 "M" — Propagation is possible by both first and second F modes. The strongest mode is normally the first mode, but the vertical aerial pattern may influence the mode received.
- 5 "A" — High absorption, ie above the absorption limiting frequency but probably too close to it for good communication
- 6 "X" — Complex mixtures of modes including the second E mode

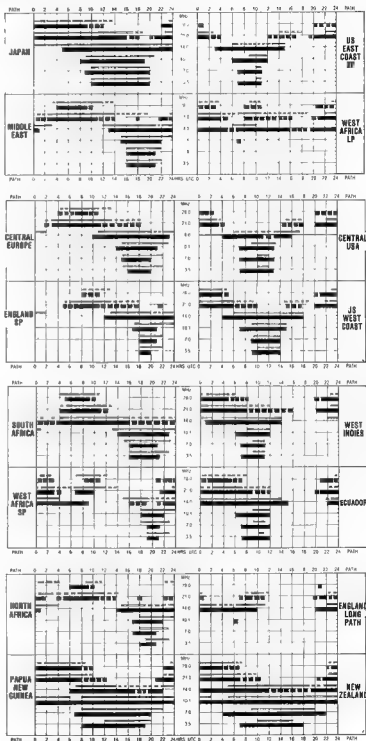
These are the most significant types we encounter. The full lines or bars on the chart cover 2, 3, 4 taking 5 into account. The broken lines or bars are depicted by 1. 6 is extremely hard to verify and is not taken into account

The paths from Eastern Australia are based on Canberra. The paths from West Australia are from Perth. Suitable allowance should be made on Eastern paths for geographical differences. Times as much as 1 hour difference between Victoria and Queensland in band openings occur. Often there is no signal available in one State, whereas the opposite effect occurs in the other State, they get the lot. Marginal differences produced by layer tilt and varying degrees of ionisation can be very frustrating.

Generally the predictions show that time of day when the path should be open between the two areas. All other factors notwithstanding

LEGEND

-  FROM WESTERN AUSTRALIA
-  FROM EASTERN AUSTRALIA
-  BETTER THAN 50% OF THE MONTH, BUT NOT EVERYDAY
-  SP SHORT PATH
-  LESS THAN 50% OF THE MONTH



Predictions courtesy Department of Science and Environment IPS Sydney.
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The 1983-84 Call Book is now being compiled. If you have relevant information for inclusion — Rush it to Box 300, Caulfield South Vic 3162 NOW.



LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.



1/138 Bluff Road,
Black Rock, Vic 3193
23 2 83

Editors Note:

If any reader needs a copy of the QST cutting please send an SASE and a donation to cover photocopying costs to PO Box 300, Caulfield South, Vic 3162.

AR

PO Box 93, Toongabbie, NSW 2146
8-2-83

Dear Sir

Congratulations on the "new-look" AR. I am finding every issue of great interest and look forward to receiving my copy each month, in fact I make distinct humming sounds if it is delayed in the post.

73

Yours faithfully
Jim Swan, VK2BGS

AR

Hughesdale 3166
2-3-83

The Editor,

Dear Sir,

So everything's up to date in Latrobe City (VK7OW p 20 AR Feb 1983) Does the "improved Mark II G5RV" really sparkle?

Metinks something is wrong. Here in downtown Hughesdale we haven't seen a horseless carriage for sixty years. Modern automobiles purr rather than chug along the sealed streets.

The length of the flat-top and the 300 ohm feeder, using a velocity factor of 0.85, is equivalent to 98.5 feet. Referring to the RSGB Amateur Radio Handbook (fig 13 p 361 3rd Ed) we find that at the feed point for the coax we have

on 3.5 MHz — a fairly large inductive impedance
on 7.0 MHz — a low capacitive impedance
on 14.0 MHz — a high inductive impedance
on 21.0 MHz — a high capacitive impedance
on 28.0 MHz — a low slightly inductive impedance

For the original genuine G5RV design the combined feeder and half flat-top length is 85 feet for which the same fig 13 gives:

on 3.5 MHz — a low inductive impedance
on 7.0 MHz — a high capacitive impedance
on 14.0 MHz — a low capacitive impedance
on 21.0 MHz — a low inductive impedance
on 28.0 MHz — a high inductive impedance

Hence the "original" appears to present high VSWR for 7 and 28 MHz while the "improved Mk II" appears to present high VSWR for 14 and 21 MHz and a worse (compared to the original) VSWR on 3.5 MHz.

I do not think I want to buy the new "improved Mk II" version. Altering the feed line lengths from the original can improve the matching on some bands at the expense of others. If VK7MS is in the business of selling (and delivering and installing) 70 foot pine trees then I should be glad to receive a price list. Nothing makes an aerial system work better than putting it up higher.

Yours sincerely
Ronald Roy

AR

61 Ashwood Dve
Ashwood 3147
31 1 83

Dear Sir

Reference the cover photograph of AR Feb 1983. What on earth is the soldering iron welding male doing to the receiver? Is he soldering a component to the board? Could not be as all component leads

are on the other side of the board. Is he soldering a connecting lead? No, there are no leads visible under the iron. The iron appears to be just for some sort of show. If this be true then the magazine is treating readers' amateurism. Further, the cover photo shows an apparently finished receiver, yet I see a few components lying in front of the set? Some toroids which appear to be front end coils are shown soldered in place yet there are two toroids spare? While I cannot see a mains cord connected, I can see that the mains switch is on. And this, while the operator's soldering iron?

Surely the use of the depicted mains operated soldering iron went out with valve receivers? Why could not a more suitable iron for the task, such as a temperature controlled iron have been shown. And, is that a piece of grass I see at the top right of the picture? Tch, Tch, what an odd workbench. And look at that length of solder from the tip of the iron to the solder spool. What a waste of solder, surely no amateur would do that in these hard times.

However I do like the piece of packing used for the top of the bench upon which the receiver is resting. The piece would really stand up well to the average amateur's workshop use. Especially if he smokes.

After all that, I read the article on the receiver and found it excellent. Keep up the good work and let's see more of these articles and perhaps of the amateur pictures.

Peter Frederick
VK3BSF

Editors Note:

Many thanks for your comment, Peter, but the chap I am more concerned about is the photographer who used 240 V flood lighting whilst standing barefoot on the wet grass.

AR

88 New North Rocks Road
North Rocks 2151
1-2-83

The Editor,

Dear Sir,

When I obtained my licence I was grateful to the WIA who provided some of the books I read. I knew nothing of it other than that, asked many people, most of whom said they knew as little of the WIA as I did.

I was about to write to the WIA and ask quest ones, when I received the answers and an invitation to join, from the WIA, with a sample copy of AR.

I have not met a great number of amateurs yet, but most I have found friendly, courteous and helpful. The odd "old spark" who may have even started the WIA told me that I was not doing my "patriotic duty", etc, unless I joined, plus various other comments.

I have made some friends amongst the early amateurs already and I am writing to ask of all experienced amateurs, their patience, indulgence and advice.

Please forgive us for not knowing what was in AR in 1979 or those many unwritten conventions. Just be patient with us and in forty years, we may be as good at it as you are now.

TKNS FR YR HLPI
Noel, VK2YXM

AR

25 Beecroft Pde, Currarong 2540
1 2 83

The Editor

Dear GM,

I was indeed pleased to discover that my letter to you (15th Nov 82) concerning the distress call by

The Editor,
Dear Sir,

I have written a computer programme for my TRS-80 which sends and receives Morse Code.

My FT 101 transceiver has been keyed by the computer which can send at virtually any speed. Or air reports have been good.

However, while the computer prints on the screen anything that I send to it through a hand keyer, a d.c. oscillator — I have not had much success in decoding signals off air.

There appear to be two problems. One is that the received Morse needs to be pretty well perfect to be decoded — and there's not a lot of that about. The other is that the computer appears not to be able to differentiate between Morse signals and random noise and static.

Perhaps the first problem could be solved by having the Morse sent by another computer using my programme — but the second probably needs a good filter which removes, from the signal, everything but the Morse.

I wonder if there is anybody who would like to get together with me and help solve my two problems. I would also be interested to have contact with anyone who could assist me to get the computer going on RTTY.

If anyone is interested — I'd be glad to hear from them at the above address or by phone on (03) 598 9467.

Yours etc,
Alan Maclean VK3ASL

AR

562 Koorringal Road,
Wagga Wagga 2650
5 1 83

The Editor,

Dear Sir,

I enclose a cutting from QST of December, 1983 illustrating in an estimation of the Novice situation in USA after two years of experience with the class of licence. While the Novice experience in USA may be somewhat different from the Australian situation, there are sufficient points of major benefit and interest common to both national areas to justify a request that you might publish some or all of the "QST" article for benefit of the Australian Amateur Service.

I realise that in the USA the Novice class was introduced prior to the CB "explosion", which had severely detrimental effects on the American Amateur development. Here we had the CB and pirate invasion BEFORE the Novice Licence was introduced to counter the massive unlicensed operations of the so-called CB movement. There were some benefits from the CB invasion in that CB and pirate usage provided a certain number of recruits to amateur radio and an increase in the net rule membership. However we DID lose an entire HF band without compensation by invasion and the subsequent condoning of such reprehensible action by the Federal Government. Since then, other services have been ejected from their allocations to make room for the insatiable demands of the local CBRS and its big PIRATE brother, under the leadership of BIG BUSINESS interests for whose benefit the radio spectrum appears to be an area for exploitation to ensure that "already wealthy" citizens are made "still wealthier".

Yours faithfully,
Rex Black VK2YA

HP2XB/PMM was of sufficient interest to warrant publication on (Page 60)

Additionally the article 'Emergency and Distress Calls' on Page 36 is absolutely first class

However, one minor error, in the publication of my letter was the call sign which was shown as VK2AEF — my call is 2AEV. Only a minor thing, but may cause embarrassment to 2AEF (I guess it's my poor handwriting)

73
Yours faithfully,
Alex McMurray, VK2AEV

Sorry for the unfortunate error Alex

Gil Sones, VK3AU
Editor AR

10 Moorabinda Street,
Buderim Qld 4556
28-1-83

The Editor,
Dear Sir

The WIA has always urged members to 'use your bands or lose them'. Do you know, sir, that there is 25 kHz of the 15 metre band virtually never used by VKs?

I wish to make a plea on behalf of the Novice CW operators that the WIA endeavour to get this segment — 21 100 MHz to 21 125 MHz — allocated for Novice CW operators — CW only — and I would back my submissions up with the following points:

1. The 25 MHz segment is rarely used by VKs. I have monitored this segment of the band over the years and can only recall hearing a VK being called. At my radio club of some 45 members not one used this segment. Therefore it is not being utilised to the full by Australian amateurs.

2. When the band is open the present 25 kHz Novice segment is always very crowded. Overseas stations know it is the VK Novice portion and know that they will always find VKs there. The JAs and KAs who call CQ VK for hours on 21 100-21 125 MHz and don't get answered are the newcomers who have not learnt of the VK frequency allocations.

3. Despite the 'Gentleman's Agreement' there are still SSB operators in the CW segment, and, regretfully, some of these offenders are full call operators.

4. The Woodpecker seems to have a particular liking for the CW segment too — many evenings there is barely 5 kHz clear for CW operation. Oddly he is not often on 21 100 to 21 125 MHz.

5. When rare DX appears in the Novice segment, full call operators soon appear — quite rightly so — so why not allow the full 50 kHz to Novice CW?

6. The American Novice CW operators appear to go down to 21 100 MHz.

I know many Novice CW operators share my views but there must be many more so please speak up or let me hear your views.

In conclusion Sir I would like to reiterate my findings that is, that there is 25 kHz of our valuable 15 metre band NOT being used by VK stations.

73
Tom Dowling, VK4NUN

PO Box 109, Mt Druitt
NSW 2770
1-7-83

The Editor

In reply to statements made by Bruce VK3XJ in his article 'HERE'S RTTY' — February issue AR.

It is my understanding that the 'TY' in RTTY, was an abbreviation of the word 'TELEGRAPHY' or has it been changed mysteriously? CW or carrier-wave became 'telegraphy' when interrupted in a recognisable form, i.e. the Morse code or Continental code etc. Thus the two 'CW and telegraphy' are widely used in an interchangeable role, and recognised officially in both 'Forms'.

Rather than dither over a technicality, it would have been better had Bruce directed his energies towards a sensible agreement for the co-called gentlemen in the amateur service. Many SSB

operators share the bands with the narrow band boys without any hassles, yet there are the odd few that make life difficult by using the recognised 'telegraphy' allocations for their local ragchews when the DX is running etc.

The strange thing is, that these people had to learn the code, yet seem bent on taking their spite out on their fraternity for having had to do so. So I suggest that the 'agreements' be made more amicable or that they be scrubbed altogether and fixed frequencies be allocated for the use of telegraphy (whatever form) and phone operations. Perhaps his influence with the WIA and DCC may help those of us who suffer silently... and long!

As far as the statistics on CW operators. My statistics of a particular competition show that CW outnumbered phone operations by 100 per cent! In other words the number of operators using the narrow band mode who shared the bands with the medium band folk are undisputably the MAJORITY USERS.

I would support your 'idea' then Bruce, of the greatest benefit for the greatest number of people, but please use my contest figures. It is this sort of thinking that will erode the foundations of what could be one of the finest amateur radio associations in the world.

Yours fraternally
Colin Stevenson, VK2VVA

11 Kyle St, Wembley Downs, WA 6019

The Editor,

I would like to enter a plea for LARGER circuit diagrams in AR technical articles.

As an example, please see Page 15 of Feb 83 AR. I have excellent eyesight but I consider that each of the circuits on this page could easily and profitably be enlarged x2 in horizontal and vertical dimensions.

I would hasten to mention that the drafting (in this case by Lizz Kline) is immaculate and that SIZE is the issue at present.

Considering that the Feb issue of AR contained 64 pages and only four involve technical construction I feel it is not unreasonable to expand this aspect of AR.

If I were VK3XU, the author of the article 'A Square One Receiver', I would certainly feel insulted in seeing my article presented in such a way.

As a different issue, I would like to point out that AR is the only magazine I know of that makes no payment for technical articles.

With the cost of components and test gear being what it is and considering the cost of producing photographs of the completed project, it is only natural that authors would send their better projects to magazines which will help to defray some of these costs.

I would suggest about \$30 per page subject to the editor's discretion if it is considered that an article has been padded out to fill extra pages or was considered to be too trivial to be paid for at this rate.

At \$30 per page you would still be getting many hours of research at a bargain price. If someone was likely to be insured by being paid(?) they could always say so when submitting the article. Maybe we could end up with 8 or 10 technical articles per month?

Hope you can find time to consider implementing the above items. I'm sure the magazine would benefit from them.

Best wishes,
Mike Murphy, VK6KRO/CZX

Amateur Radio does not normally pay for articles. However payment has been made for specially commissioned articles.

Editor

Southport Avenue, Eagle Heights, Qld 4271
31-1-83

Editor,

Dear Sir

I have, under a separate letter, just made a claim

for a VK4 record on 432 for a QSO on 432.1 MHz. 2 x SSB with ZL2TAL on 24/11/82 at 1220 UTC

Recent QSOs have been ZL2TAL on 144 a.s.o 2 x SSB ZL1BHX, ZL2VHT, ZL2UEC, ZL1TWH

VK4TL on 10-1-83 2 x SSB 144 100 MHz
VK2ZAB on 26-1-83 2 x SSB 144 015 MHz 1z

I also have regular QSOs at 1000 JTC on 144 100 MHz with VK4ZWH at B.nobarg

73
Bill Hempel, VK4LC
ex VK1BHF
VK3A=

10 Poultier St, Ashburton 3147
7-2-83

The Editor,

Dear OM,

I read with interest the letter from John Stone VK4NZ regarding the colour of the AR cover and I had intended to comment on this since the latest change was introduced.

I have all copies of AR from March 1946 and see that there was no uniformity of colour for each volume until 1962. From then, until the recent change, each volume had a distinctive colour except for special issues like the Silver Jubilee.

For the convenience of filing and finding, I suggest that the green background at the top of the cover be retained for 1983.

As a matter of historical interest the May 1946 copy cost sixpence at D J Collins, 400 Lonsdale St, Melbourne.

C N Pickering, VK3ATP

A colour strip has been placed on the spine of the 1983 issues of Amateur Radio. Colour on the cover however is chosen to complement the cover photograph.

Editor

12 Turner St
Thirmere 2572
14-2-83

The Editor

The following advertisement appeared in our local rag, and gave my day a real lift!

C3 Rad co, 18 channel \$40, 15 ft cable, \$7, TV Eye filter \$3 etc.

Now with the standard of BCTV programmes an eye filter must be a necessity — and cheap at the price. God Bless the phone-in classified ad. Lew's Carrol has nothing on them.

Regards,
Stephen Gard, VK2ESG

50 Lenna St,
Burwood East 3151, Vic.

Dear Sir,

I would be grateful if an officer from the WIA or the repeater committee would clarify the current problem with VK3RMM. The Mount Macedon repeater I have heard many stories that mount interference caused by VK3RMM, or interference to RMM by other services.

More seriously I have heard there is a chance that the repeater may never be restored to normal use. If this is true, it will be of grave concern to many amateurs who rely on this repeater for communication, especially those in country areas.

While none of this information may, in fact be true I ask the WIA to make a statement as the amateur service is not benefited by erroneous stories floating around about the future of the repeater.

Yours faithfully
Terry Fraser, VK3RT

The VK3RMM repeater has been voluntarily turned off in the interests of good public relations with the Victoria Police whose site we share by grace and favour. There are currently some co-siting problems which will be resolved as soon as possible.

An explanation has been given on divisional broadcasts.

Victorian Division



QSP

PLEASE NOTE

Letters to the Editor should be short and to the point. They will be easier to read and will not require shortening or summarising.

Amateur Radio is produced under a very tight budget. Space for each item printed in the magazine is at a premium.

AM

Editors Note

Correspondents should note that letters requiring local divisions' attention or federal policy are more effectively dealt with when addressed to their local division.

Federal Policy is formulated after discussions by divisions and by the agreement of divisions. See Amateur Radio February 1983, page 11.

The WIA Directory in Amateur Radio December 1982, page 4 lists divisional office bearers and divisional addresses.

AM

Answers to Novice Notes AOCP Test

Score 10 points for each correct answer subtract 10 points for each question not answered and subtract 10 points for each incorrect answer.

1 (a), 2 (b) & (c), 3 (b), 4 (a), 5 (a), 6 (a) & (c), 7 (a) & (b), 8 (c).

If you scored less than 80 — back to the text books.

AM

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Message Resume After Paddle Interrupt	Yes
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Superseded demonstration Model
Morsematic MM-1 was \$269 — now
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COMPETITION
will be announced
next month

The winner will receive this
camera



Silent Keys

It is with deep regret we record the passing of—

COLIN ANDERSON VK3XV
JOAN FUDGE VK7ZYL
DOUGLAN JOHNSON G6DW
R McFARLANE VK4AYZ
J C PARK (Life Member) VK6BB
W J RAFTER VK4PR

Obituaries

Richard McFarlane VK4AYZ

It is with deep regret that we advise the passing of Richard McFarlane, of Mount Isa, on the 19th of January, 1983. He was thirty-six years old.

Richard's interest in electronics and radio dated back to his school years in Perth, but it wasn't until he was settled in Mount Isa that we talked each other into sitting the Novice Exam. Richard's callign VK4NYZ/ZBR came from the August 1979 exam with VK4AYZ the following year.

Richard's interest in computers inspired others of our community along the same path, and he was always ready to help and advise when needed. Likewise, his enthusiasm for 2 metres helped the repeater project.

Richard was a quiet, unassuming person and wasn't heard 'on air' very often; his interests were on the work bench experimenting and building, but everyone was welcome in his shack.

Our sympathies go to his wife Claire and young daughter Alice and also to his parents Dixie and Val.

Richard was a true gentleman and he will be missed by his many friends.

Roger Wood VK4ARZ
Sharen Wood VK4AWE
AR

WARNING!!



Disposing of your old rig??

Please ensure it goes ONLY to someone licensed to use it on YOUR bands.

HAMADS

PLEASE NOTE: If you are advertising items FOR SALE and WANTED please write on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.

* Please insert STD code with phone numbers when you advertise.

- Eight lines free to all WIA members. \$9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication.
- OTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

TRADE HAMADS

Conditions for commercial advertising are as follows: The rate is \$15 for 4 lines, plus \$2 per line (or part thereof) minimum charge \$15 pre-payable. Copy is required by the first day of the month preceding publication.

AMIDON FERROMAGNETIC CORES: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 SASE to: R. J. & U. S. Imports, Box 157, Mortdale, NSW 2223. (No enquiries at office: 11 Macken St, Oakley, 2223.)

CB RADIOS S69; walkie talkies, short wave radios, military, outdoor, business, amateur, marine, repairs, RTTY Siemens 100A printer \$120; base mic, \$45; ultrasonic alarm, \$35; all ham bands on a single 6 ft. whip, 1.8 to 30 MHz, for base or mobile, \$300; aeriels, installation, demonstrations, 40 ch. CB conversions, accessories, new rigs weekly. Bridge Disposals, 12 Old Town Plaza, opp. Bankstown Railway Station, NSW. Mail order service and all enquiries to 2 Griffith Avenue, Roseville 2069, or phone Sam VK2BVS, 7 pm to 9 pm only, on (02) 407 1066.

DIGITAL LOGIC: Hands-on, teach-yourself module which combines theory with experiments on Digital Circuits Board. Manual of 117 pages by experienced teacher. Gentle entry into world of logic gates, flip-flops, counters, with challenge to go further into very basic computer electronics. Parts kit \$34, assembled in box \$46, plus P & P. CYRIL VK2ACD, Marist Brothers, 44 Langdon Rd, Winston Hills 2153. Ph: (02) 624 5545.

OWNERS OF MOD 1, MOD III, & SYSTEM 80 COMPUTERS. Use your computer to transmit and receive Morse, RTTY & ASCII. Programmers delve into the secrets of your ROM. Amateurs. The RICHRAFT books are the least expensive way of using your computer in these modes. Disks also available. Send SASE for full details. NORTHERN DIGITAL, BOX 333, CHARLESTOWN 2290. Ph: (049) 43 8881.

WANTED — NSW

CRO TUBE 9 pin local and/or circuit diagram for the Cossor Miniscop CRO. VK2BGL QTHR. Ph: (047) 54 1096.

CW TRANSMITTER. High Power. VK2BOA QTHR or Ph: (049) 43 8981 AH.

LINEAR RF POWER AMPLIFIER HF 60-10 m, capable of maximum legal power, USA manufactured preferred, by genuine cash buyer, all offers to PO Box 120, Vauluse, NSW 2030 or Ph: (02) 371 8854.

WANTED — VIC

COLLECTOR — Historian requires any old Morse keys or bugs (semi-auto devices). Ex-services, PM, etc. Will pay cash. Maurice, VK3CWB. Ph: (03) 49 4167. PO Box 115, Fairfield 3578.

HEAVY DUTY ROTATOR — Emulator or similar. Enquiries to Trevor VK3KEG. Ph: (03) 789 4911.

MAGAZINES — ARs containing operating procedure incl CW. Portable, Mobile operation, QRP and HF antennas for limited space. G Harris, 9 Lomas St, Ringwood East 3135.

WANTED — QLD

HALICRAFTERS TX/RX. Also Halicrafters general coverage RX. SX-71 or earlier. Roland Clark VK4EG. QTHR. Ph: (079) 54 6631.

RTTY ARC: Copies of pictures or tapes of RTTY art. Also circuits of CW and Baudot idents. EPROM or Diode Matrix. To suit RTTY ident. Contact Col VK4BCP QTHR.

VALVES NEW 6AK5, 5Z4G, 0A2, 0B2, 60B0, 6X5, 7360, EC08B, 6C4, 0V04/7, TT15, 2-01C (AC probe diode for HF VTM); New 7 pin and 9 pin valve sockets. VK4JZ QTHR. Ph: (07) 44 7980 AH (not weekends).

FOR SALE — NSW

ANADIX DP8000 last dot matrix line printer serial RS 232C/current loop or parallel \$375. QST back issues 1960 to 1981 about six issues missing. Also Electronics Australia 1968 to 1982 nearly complete. First reasonable offer. Mark Webster VK2BAK 1 Fisher Ave. Wahroonga, NSW 2076. Ph: (02) 487 1299.

COMPUTERS 386 2650, SCVT 100, 32K-2C EPROM, 6K CMOS RAM, KT1500, 8K. Lots software. Xerox TTY — ASCII board. Creed Mod75 Printers, 240 V synch, 50 baud, small, golfball \$25. Take the 4 and incl manual, 75 baud, gears, spares. Kien Schmidt TTY RePerf-TD \$30. Pys overland FM la-band, solid st. Rx, 6146. Tx \$25. VK2MJ QTHR. Ph: (0649) 51624.

CALLBOOK 1982 Foreign \$10. Spiderquad hub W6SAI design, rugged construction \$30. VK2DET Blackheath NSW QTHR. Ph: (047) 87 7083.

FT-7, no mods, xials for 10 m, mobile bracket \$350 or xchg for 2 m handheld plus cash adjst. Also Yaesu mobile whip system for 80, 15, 10m S75 complete. Stephen, VK2ESG. Ph: (046) 81 9675 AH.

HF LINEAR AMPLIFIER, over 100 W O/P, broadband, rugged Philips transistors, as new, commercial unit, ideal for FT7 or TS120V. \$100 VK2BGL QTHR. Ph: (047) 54 1096.

ICOM 701 HF Txcrv, with power supply and desk mic, bought from Vicom, Excellent condition \$730 — Mike VK2BMR QTHR. Ph: (02) 639 8643.

ICOM IC740 under warranty \$750. TS8205 two months use as Rx. New condition with workshop manual etc \$650. Ph: (02) 467 2354.

KENWOOD TR740DA 2 m Tcvt, 25 W, 800 ch. Perfect cond. Covers never been off used only as base station \$295. Max VK2GE. Ph: (043) 92 4900.

KENWOOD TS-120V TRANSCIVER. Mint condition, MB-100 mobile bracket, 26.5-28.0 MHz. Operators

manual \$450. ATN 28-30-5 five element beam \$100. Charles VK2VSH QTHR. Ph: (067) 54 9328.

KENWOOD TS520S Tcvt, CW filter, remote VFO \$20 S. PS20 spkr with spare set tubes, manual, immaculate in orig box \$850. Shure 44A SSB mic new cond \$55; 2 x Drake TV 3300LP TVI filters \$30 ea. Osbornack SWR 200 \$50; Ham III rotator \$100; Rak balun \$10; 5 new 6146B \$8 ea; 2 new 572B \$15 ea; 10 new 6D05 \$2 ea; 2 x 811; SCR 211 freq meter \$45. Geoff VK2FY QTHR. Ph: (02) 602 9043.

KENWOOD TS820S with MC50 mic, DC option, manual and remote VFO in original cartons. Excellent condition \$700. Greg VK2KEO. Ph: (02) 982 3827 AH.

KENWOOD TS830S with MC50 \$800. Kenwood VFO digital \$270. Kenwood SM220 monitor with D68 \$370. Kenwood speaker \$30. Kenwood tuner-antenna \$170. All equipment very little use. 4 months old. Excellent condition. Herman Feige VK2EHF, Wollar Rd. Cooyal via Mudgee, NSW 2850.

REALISTIC PRO-2002, 50 ch scanner as new. The best on the market \$430 ONO. Sony ICF 2001 fully synthesised HF portable Rx with mains power supply \$250 ONO. Philip VK2DPN QTHR. Ph: (049) 43 4220.

UNIDEN 2020 HF Txcvt complete with ext VFO, matching speaker, manuals, connectors, mic \$375. VK280A QTHR or Ph: (049) 43 6961 AH.

YAESU FT101E SSB AC/DC mic manual & 4 x 6JS6C \$550. Yaesu FL50 80 m-10 m HF, 50 W transceiver \$130. Grundig GDO 240 V 6 coils 1.7 MHz-250 MHz \$50. Kyoritsu SWR bridge 109 \$10. CR impedance bridge \$10. The lot \$700 ONO. Deceased estate of VK2ABT. Ph: (02) 858 1897.

YAESU FV901DM scanning VFO 40 mem \$355. Yaesu FP12 power supply with speak \$125. Osbornack 300 SWR and power meter — HF, VHF and UHF metering \$85. Shure 44A bass mic \$65. E-Dick Smith freq counter \$85. Sony AM/FM and BFO 150 kHz to 136 MHz 6 band Rx \$430. Other bits and pieces, panel meters etc. All items ONO and in as new cond. Craig VK2PLF. Ph: (049) 43 9996.

FOR SALE — VIC

ANTENNA C360X 5 el triband Yagi, 3 el 20 m and 15 m, 4 el 10 m comes with balun and 10 m RG8 coax GC with instructions \$200. Also, Pye Victor and AWA car phone MR15A. No crystals \$10 each. TE20D RF sig gen 120 kHz to 500 MHz in 6 bands \$40. Cash only, all prices firm. Contact Phil VK3DGC. Ph: (03) 723 1669.

DECEASED ESTATE of Dick VK3DG, late of Lancelfield. Yaesu FT101E CW filter \$650. FT620 6 m \$250. Swan \$50 \$250. Hygain ant FH6 \$200. Hygain 14 el 2 m ant \$50. KWH107 ant tuner \$100. VTFM 2 of \$30 ea. Prop pitch Motor \$20. 2 m Rx converter \$20. Amount of disposal and vital bits. What offers. Boxes of books and maps 1937 and on. Offers. Enquiries to VK3AMW. Ph: (054) 29 1247. QTHR.

FT101E with opt novice mod. AC/DC full manual, mike, fan AC/DC \$425. VK3DPS. Ph: 509 8216 or (059) 85 4185 (AH).

FT200 with match power supply and speaker, spare valves & manuals. No mods, low QSOs. Black panel \$380. MFJ 941B 300 W ant. tuner \$85. DX 160 Realistic Communication Rx \$110. All excellent cond. VK3ALT QTHR. Ph: (03) 277 2337.

KENWOOD TS120S 100W transceiver, late model, mint condition in carton, complete with noise cancelling mic, operator and workshop manuals. \$450 ONO. VK3ARZ QTHR. Ph: (03) 584 9512.

KENWOOD TS520 Txcvt C/W, AC/DC cables and spares including 6146 8s unmarked in original carton. \$450 ONO. VK3NV QTHR. Ph: (03) 578 6866.

KENWOOD TS520S with 500 Hz CW filter plus VC-2 SWR/power meter and Daiwa LP filter. \$520. Also FDX Multipalm II 2 m HH with 2 R, 4, 5, 6, CH 49, 50 crystals \$100. VK3DRU. Ph: (03) 846 1259.

MALLY TOWER 64 ft inc extension \$650. Emotator \$02 Cxx — complete control and cables plus Swiss Quad 10 & 15 m with RG8 cable \$450. On site Preston. All EC. Urgent sale — moving QTH. VK3NAJ QTHR or Ph: (03) 44 6803.

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